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System of Promotion to Higher Ranks in the Army	*Brigadier OS Bhandari*

OCTOBER-DECEMBER 1975

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UNITED SERVICE INSTITUTION OF INDIA

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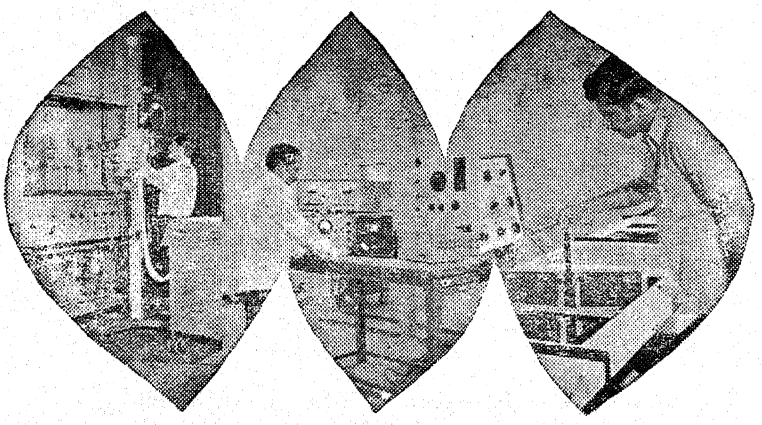
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ROLE OF THE MILITARY IN CHANGING CHINA

MAHARAJ K. CHOPRA

TO any observer the military would strike as an outstanding feature of China's scenario today. The vast military complex is comprised not only of the regular armed forces, which are massive enough by themselves, but also militia, several types of security forces, and the national reserve which can be rapidly activised. A veritable military colossus has thus come into being. This serves the usual tasks of defence. At the same time it figures in the political, economic and administrative sectors, thus taking a hand in the shaping of national life in a big way. It is also evident that China still places faith in the efficacy of the gun, that the inspiration from the hard-won victories which led to the capture of the Chinese mainland by Mao Tse-tung is still there, and that the military momentum of the past propels China up the road into the future.

How the military operates and what part it plays in society must also be viewed from the Chinese angle. Wars gave China ultimate triumph, and the Chinese are proud of it. Wars also caused immense upheaval and overhaul of society. The Chinese are proud of this also, and not only that. As a result, they have developed concepts to the effect that such upheavals are indispensable for reformation of society and must occur again and again till the objective, that is complete communism, is achieved. In the communist China scheme of things, convulsion and change must go on and the society must witness not one but many revolutions.

As society changes, the role and position of the army must also change. This has in fact been the case. The military on the one hand and the external and internal postures of China on the other have been acting and reacting on each other. Through a series of ups and downs China has been changing facades. How has the military responded and what its place and role are in the latest facade of China marked by a process of detente are questions of greatest interest.

BASIC CONCEPTS

The basic concepts of China are of key importance in this connection. The first relates to revolution. Not only is revolution inevitable for growth but also it must continue. Through numerous dissertations and over many

years Chinese leaders have been developing this line, which now has been summed up thus in the latest party constitution adopted in August 1973 :

> "Socialist society covers a considerably long historical period. Throughout this historical period, there are classes, class contradictions and class struggles; there is the struggle between the socialist road and the capitalist road; there is the danger of the capitalist restoration; and there is the threat of subversion and aggression of imperialism and socialist imperialism. These contradictions can be resolved only by depending on the theory of continued revolution under the dictatorship of the proletariat and on practice under its guidance".

As instances of continuing revolution the Chinese point to the convulsive phases of development in the post-war period. The last of these has been the Great Proletariat Cultural Revolution of 1966, and we shall see presently the role army has played in this.

The second concept relates to relationship between the Party and the Army. So long as Mao Tse-tung was fighting wars and the political and the military were virtually one, the problem was not of much practical importance, but once that period was over and reconstruction of mainland China commenced, it became urgent. Mao wrestled with it throughout 1950s, it was in the forefront of his programme in the 1960s, and it was still there before the National People's Congress in 1975. A lucid explanation of the Party-Army relationship is provided in issue no. 9, 1974 of *Red Flag* :

> "The relationship between the Party and the Army can only be of the commander and the commanded. Such a relationship cannot be reversed, nor can it be an equation. The Chinese Communist Party is a vanguard of the proletariat. The ultimate aim is the realisation of communism. To fulfil this task it is necessary for the Party to build a people's army imbued with revolutionary characteristics of the proletariat. There are three main rules of discipline and eight points of attention set down by Chairman Mao for our Army : Obey orders in all your actions; absolute obedience to Chairman Mao and the Party Central Committee's leadership; correct implemenation of the Party's programme ; and obedience to Party's commands—these are the sole criteria and glorious traditions of our Army."

The upshot of these concepts is that Army is an instrument of revolution under the control of the Party.

THE ROLE OF ARMY IN CULTURAL REVOLUTION

Star of Lin Piao Rises

The Cultural Revolution has been a momentous event alike in its size, the violence accompanying it, and the number of victims. That Mao used it to assert his ascendency is undoubted. But it also shifted targets from personalities to fundamental concepts. What role did the military play ?

As a flashback would show, Mao had been preparing for the event ever since 1957 when he received a rebuff from Krushchev for an honorable place in communist policy-making. Shunning Soviet support he decided to go it alone, beginning with his "Great Leap Forward" venture. But that venture was a disaster, earning him opproborium from the Party bosses as well as top Army officers. Mao decided to fight back.

First, he managed removal of Minister of Defence Marshal P'eng Teh-hui and some of his henchmen, and also the appointment of Marshal Lin Piao as Defence Minister in replacement. Thus began the Lin Piao era ... which ended so dramatically in 1971. Lin, the head of the former Fourth Field Army of the civil war fame, became Mao's chief instrument in the Cultural Revolution. While Mao did manage to win over top men of the military, he found top men of the Party a harder nut to crack. Mao's answer was to battle with the Party, not because he had turned anti-Party but because of recalcitrant men occupying its key positions.

Through Lin Piao two essential ingredients for his victory in the confrontation were gained : the decisive power base in the People's Liberation Army and acceptance of his special role independent of the Party. The cult of Mao was established when Lin proclaimed again and again Mao's special pre-eminence. It was he who had the Little Red Book prepared containing Mao's thoughts. Over 800 million copies of the book were circulated.

PLA IN ACTION

The storm troopers of the Cultural Revolution were the Red Guards, the college and high school students, eleven million young men brought to Peking with military logistic support to hail Mao and then fan out to provinces to attack and destroy local parties and government administrations. When local groups defended their patrons, the PLA was told to support the "Left", that is, the Red Guards. When the local garrison forces tended to stand behind the local leaders, central army and air force units were moved in by Lin Piao to back the revolutionary forces. Lin provided the indoctrination, the logistsics and the power leverage of the young attack forces.

On the political side, Chou En-lai lent Mao a helping hand. In particular he kept the Army content by feeding it adequately with the necessary hardware. The organs for the military production of rockets, nuclear weapons, electronics etc. were maintained in working order, and he was able to protect some of the military leaders in the provinces.

The PLA took the initiative in organising another set of rebels out of workers and peasants, who became instrumental in capturing power in the

rural and urban communities, in industry and agriculture, and in the educational institutions. Out of this emerged the "Revolutionary Committee" comprised of three elements, the "three-in-one" combination. The military provided the power leverage, the revolutinary cadres the professional experties and the Mao votaries (Red Guards) the left ingredient. This was to the advantage of the military. In practice the committee became a two-in-one combination of the military and the revolutionary cadres, and the Army emerged as the dominant factor. When Party core groups were formed, the same military leaders combined their positions with new functions as Party secretaries. That was the structure to be adopted for the entire country.

How long the power struggle had gone is difficult to say. But an unexpected factor brought it to an abortive end, the Soviet threat. A large number of Soviet divisions loomed up on the Chinese borders, which coupled with memory of the invasion of Czechoslovakia posed the danger of Russians taking advantage of the turmoil in China. As it happened, only border clashes took place in the Amur region, but it gave Mao the respite to look into another aspect of the Cultural Revolution. And this time, curiously enough, his target was Lin Piao himself.

DECLINE AND DISAPPEARANCE OF LIN

Curious, because when the Nineth Chinese Communist Party Congress was held in April 1969, Lin Piao and his supporters were at the height of their power. The new Party statutes established Mao as leader and Lin as Mao's successor. Everywhere propaganda posters portrayed Mao together with Lin Piao., closest comrade-in-arms and annointed successor.

What turned the tables against him is a story built from a one-sided version to which Mao Tse-tung has partly contributed. While the Revolution was on Mao began to suspect, like the true hard-boiled old guard fostered in the tradition of Stalin, that Lin was using his cult and his own position in the Army for a personal ascent to power. Mao retaliated swiftly. He saw to it that the leaders of the former Second and Third Armies, men like Ch'en Hsi-lien in Manchuria, Hsu Shih-yu in Nanking, and Li Teh-Sheng in Anhvei, still highly respected and in key positions, were on his side. He got rid of some pro-Lin leaders and packed the Military Affairs Commission, the highest body under control of the Party Politburo, with his own men. Lin's strength was borrowed enough already, with a questionable charismatic appeal. These factors affected his capacity to use military force, a decisive factor in the power struggle. By his strategem Mao succeeded in taking direct military control out of Lin's hands.

The rest of the story concerns with Lin's "counter-revolutionary plot", from open take over in the Shanghai area to retreat in the mountains for guerrilla warfare in case of failure. The coup failed, it is said, and one hears, finally, of Lin taking a plane to the Soviet Union but crashing over Mongolia to death.

PARTY TAKES CONTROL

With the end of the Cultural Revolution and demise of Lin Piao another phase of developments in China begins, and continues, marked by consolidation at home and detente abroad. Expectedly, this is reflected in the attitudes and directions to the military.

The Army had served Mao very well indeed. Not only had it upheld his ideology and personal ascendancy but also taken a hand in restoring economic and administrative order during chaos. Hence in the wake of the Cultural Revolution the leadership conducted a public relationship campaign to project the Army as a model for the people to follow, and the columns of *People's Daily*, *Red Flag* and *Liberation Army Daily* were profusely used for this purpose.

But Mao, while he applauded the Army, was suspicious as usual and worked hard to ensure that the Army did not profit unduly from its laurels. Certainly, it was not to be permitted to become dominant. Hence the first step was to keep the ghost of Lin alive. There was the "counter-revolutionary" Lin faction with its designs to replace the dictatorship of the proletariat with a fascist order, a faction comprised of revisionists, pro-Soviets, careerists, conspirators and traitors. That faction seems to be eternal, so that the ghost of Lin continues to stalk the land, remindful of the dangers of an Army which is under control of men like him.

Alongside the denigration of the former Defence Minister, purge of his followers from the armed forces was under way. The purge affected nearly 40 military officers at the centre. Neither a new Minister of Defence nor a new Chief of Staff was appointed. These two posts were to lie vacant for four years, only to be restored by the National People's Congress in January 1975. Thus the PLA was deprived of top leadership, which facilitated Mao to keep the reins of command and control in his own hands. In the actual administrative sphere the Army was duly represented in the local and central Revolutionary Committees, but its dominance in these committees was sought to be eroded. It was the Party's turn to lead in these creations of the Cultural Revolution.

Tenth Party Congress

In August 1973 the tenth National Congress of the Party was convened. In his major speech Prime Minister Chou En-lai spoke of the Party's "ten

major struggles" in the past and reiterated the concept of its dominance : "We should further strengthen the centralised leadership of the Party. Of the seven sectors – industry, agriculture, commerce, culture and education, the army, the government, and the party — it is the Party that exercises overall control." According to him the Party then consisted of 28,000,000 members. The newly constituted Central Committee had 195 members and 124 alternate members. On the average the military constituted some 40 per cent of the total. There were also the military in the 21-member Politburo and 9-member Standing Committee of the Politburo. Two out of the five Vice-Chairmen of the Central Committee under Chairman Mao were high ranking soldiers. An analysis showed that they were all carefully selected : for instance Yeh Chien-ying and Li Teh-sheng, the two Vice-Chairmen, were both loyal and influential. Thus the Army retained an effective place in the political hierarchy but it was subordinated to political authority.

Military Shake-up

With Party's supremacy thus established, time was appropriate for another military shake-up. Till then China's 29 provinces had been divided into 12 military commands. A reshuffling brought this number down to eleven, each under a high-ranking commander. In a dramatic sweep eight out of these eleven were shuffied, some inter-changed and others lost their jobs. At first sight it appeared this signified Party's suspicions against some of the army chiefs. But this was not necessarily so : the transfer of Chen Hsi-lien for instance to Peking Military Region could mean giving him a more important place. However, one thing was clear. Many of these commanders had been in their posts for periods of 10 to 15 years, thus having built up a political base no different from the Chinese war-lords of old. Now, in their new positions they would not be able to use military units for any other purpose than the one fully approved.

Still, the reconstruction of the Army was not complete and throughout 1974 a number of top positions were not filled. This gap was closed in the National People's Congress in early 1975. The PLA had at last a Minister of Defence in Yeh Chieng-ying. Marshal Yeh was one of the ten Marshals until all ranks were abolished in 1965. He had worked closely with Chou En-lai in the early days and is reckoned as one of his closest associates. He is also one of the Vice-Chairmen of the Party. The post of Chief of Staff went to Teng Hsiao-ping. He was rehabilitated after a stint in wilderness, largely through Chou-En-lai's efforts, and was designated as First Deputy Prime Minister, presumably a successor to Chou. Although Teng had seen combat, he was regarded as a civilian and was China's topmost dialectician of communist theory and practice. The installation of such a man in a key

military position was surprising but was further evidence of Party's octopus grip over the Army.

PLA AS INSTRUMENT OF POWER

From the ideological framework, after a crucial role in a momentous period, and now having been given a niche in national hierarchy, the PLA may be scanned as an instrument of power. One notices that the instrument is ever sharpening first because, conceptually, the power of the gun must grow along with the nation's leap towards communism, and secondly because the gun is in fact being modernised and upgraded. A five year plan of arms production is under way. Some significant indications are available of the main lines of advance.

China has adopted conscription, the period of which is 4 to 6 years, probably the longest in the world. The strength of the regular armed forces is three million. While this is next only to that of the Soviet Union (3-1/2 million), the land forces comprising 2-1/2 million are the biggest in the world. Of the 156 divisions into which this is divided, 119 are infantry and only seven are armoured divisions. This disparity is being rectified, the pace depending upon the availability of armour. A variety of tanks are under production—T-59 medium, T-62 light, T-60 amphibious. Chinese artillery has guns in calibres ranging from 85 to 203 mm, but there is shortage of heavy artillery, self-propelling guns, and trucks. China is reported to be working at the more sophisticated weapons such as anti-tank missiles sampled on the Middle East war of 1973.

The air and naval components of the PLA have only about one-seventh of the total man-power, compared with over a third of their counter-parts in the Soviet Union. This wide imbalance is not likely to continue. The strength of the air force, presently 250,000, is up compared to last year, as also of the aircraft which presently is 4,000. China's indigenous production includes Tu-I6 medium bomber with a radius of 2,000 miles, of which there are about 100, and the number is increasing. The air transport capacity has also made significant advance with 400 transport aircraft and 300 helicopters. The air defence system is still limited, capable of providing protection only to selected few key urban and industrial areas, military installations and advanced weapon complexes. China is reported to be in the Western market for sophisticated radar and electronic gadgets.

The naval picture is similar to that of the air force, marked by upswing in many fields. There are over 2,000 vessel units, of which the hard core is formed by submarines; one half of these are of Soviet design R-class but the rest are of Chinese make. China is reported to have the largest force of patrol boats for coastal defence, and its submarines have been observed in the Mediterranean, Indian Ocean and East Pacific.

The build-up of Chinese nuclear forces continues. The last nuclear test of about one megaton range took place in October 1975, the seventeenth since tests started in 1964. A substantial expansion of nuclear production facilities is taking place, and the stockpiles of nuclear weapons, estimated at 250 to 300 (both fission and fusion) could grow rapidly. A variety of delivery systems are available. The medium range and intermediate range ballistic missiles have been deployed operationally in at least four locations at soft sites above ground, though some are reported to be in silos or caves. A multi-stage intercontinental ballistic missile of perhaps 3,500 mile range (sufficient to reach Moscow and most parts of Asia) has been produced and may be ready for operational deployment. A longer range is being attempted that could take in most major targets in the USA. A nulcear-powered attack submarine, with the aim of carrying missiles, has been under test for three years.

China has been a great protagonist of People's War, which means mass mobilisation of the country's population to deter any conventional land invasion. This policy continues. Recent foreign visitors to China have reported that tunneling is a main feature of Chinese preparations, and some of them have been actually taken into Peking's underground network. Extensive deployment of militia in the border regions is another feature of Chinese strategy. With mass conscription and weapons increasingly rolling out, vast proportion of the population would now be pressed into guerrilla form of defence.

Against this backdrop the impact of the more modern armament being pumped into the PLA's arsenals is not difficult to assess. Till only the other day China's forces were characterised as fit for defence only. That description no longer holds good. Long-range strike aircraft, upgraded air transport capacity, and surface mobility have given the PLA significant potential to operate or exercise influence beyond the borders, while long-range missiles have brought it right on the threshold of global capabilities. As a matter of fact, China is well on the way to the formation of a unique military force, in which nuclear deterrence, conventional forces and guerrilla expertise are integrated more than anywhere else in the world. China is well up in the posture of both the defensive and the offensive.

DETENTE AND POWER POSTURE

In international diplomacy "detente" has come to be made up of several elements-SALT, conference on force reductions and security in Europe, rapproachment in the West Pacific, and lessening of tension in East Asia and Southeast Asia. A fact of prime importance is that all this began with dialogue with China initiated by the United States and topped by the visit of President Nixon to Peking in February 1972. That the head of the world's

greatest power should agree to travel over 10,000 miles to be received by Chairman Mao was certainly one of the most startling events of the decade. An equally notable point was the implied recognition of China as a world power of substance.

Diplomatic language in abundance was used in the Nixon-Chou communique to describe the event -- a landmark of negotiaton instead of confrontation, of settlement of problems without the use of force, of the acceptance of the principle of equality instead of hegemony etc. The fact however was that the biggest super power had been compelled to alter radically its course of foreign policy pursued during the previous quarter century. It found that mainland China and not Taiwan was the real China. This real China could not be contained. On the contrary, its cooperation was necessary if the USA was to pull out of Indo-China with at least some show of face. Its military alliances were downgraded and it stepped back from the vicinity of Chinese Shares. No observer of world scene could miss the point that behind all this metamorphosis China's power was a most compelling factor. Nobody could stop China from becoming a nuclear power, and while this power may fall short of that of the USA or USSR, it would race ahead of that of Britain and France and would threaten in the long run the security of both the super powers. It was also recognised that China could not be defeated on its own grounds and further that the potential of one-fifth of mankind could not be suppressed from casting influence far and wide. In strategic terms the role of the military as an instrument of diplomacy and as an indispensable factor of world status was vindicated.

It is true that while detente has brought the world face to face with China's power, it has also exposed China's weak points. The Lin Piao episode is a reminder of the under-currents of struggle in the country which might be still on the move. China has also suffered on the ideological front and is open to the charge of being opportunist-witness its antagonism to national liberation movement in Bangla Desh. China's capability of functioning as a "Big Brother" has proved to be limited, for its supported to its ally Pakistan in the latter's war with India proved to be ineffective. Above all, while China has done well on the score of self-reliance, its economy has nothing of another Asian country, Japan. In view of heavy investment in the import of technology, food etc. it is doubtful if China could afford defence spending very much beyond the present budget of 120 billion dollars or 9,000 crore rupees; this is probably 10 Per cent of Gross National Product and is high.

And yet this does not prevent China from the use of diplomacy for indirect accession of military power. One of the resolutions passed in the National People's Congress list January 1975assailed the bullying tactics of the

super powers and the illusory character of SALT, demanding that not until their nuclear arsenals are substantially emptied could they be trusted. China has refused to participate in any talks on disarmament, no doubt with a view to gain time to develop further its position of strength. Thus detente, while boosting the morale of the nation, and particularly the morale of the PLA, has enabled China to consolidate itself internally, to extend its influence abroad, and to enhance its military power.

CONFRONTATION WITH RUSSIA

Detente has been a great catalyst but it has hardly softened Sino-Soviet relations, which, if anything, have further deteriorated. Going back a little, the hopes of friendship enshrined in the treaty of 1950 were short-lived, and the rift has been widening now for two decades. It began early, when there was horse-trading over the question of Soviet pullback from Chinese territory and surrenders of old privileges. When Mao asked for a say in the fraternity of communism, Krushchev brushed him aside. Clash of personalities persisted. Meanwhile Russia cut its aid and supported India in the Sino-Indian dispute. The dispute slided into the sphere of ideology : China dubbed Russia "revisionist" and "imperialist" and Russia dubbed China "neo-colonialist" and "renegade".

Geopolitics has been behind all this. Russia and China are neighbours with a long common border, and they stay put where they are, eternally side by side. Both are giants in their own right, and this is the cause of a standing fear as well rivalry. Their interests clash in local as well as world environments. It is more than clear that the real bone of contention between them lies in the contest for power.

INDIRECT STRATEGY

China has taken several measures to finesse the Soviet Union indirectly; and some of these are quite in contradiction with its traditional policies. Take its attitude towards Japan. Along so many years China has been condemning Japan for its aggressiveness and warning it against falling in the clutches of its industrial-military complex. Japanese militarism was the bogeyman to arouse the Chinese against the Nippon. After detente this has changed. Japanese industry is welcome, and Tokyo's Fourth Defence Plan, currently in force, that would upgrade the armed forces significantly, has not been subjected to any hard criticism by Peking. In Peking's eyes Japan is a visible counterpoise against the Soviet colossus in the Far East.

At the same time China is cultivating Japan as a factor in the Far East power balance. It is throwing discreet hints to the USA that it need not

be in a hurry to thin out its presence. China no longer flings its tirades against the US-Japan Security Treaty, and the new orientation given to the mutual defence in a joint declaration in August, 1975 has not raised a ripple on the otherwise sensitive diplomatic waters of Peking.

When Franz Josef Strauss visited China recently Chou-En-lai is reported to have told him : "distant waters cannot fight fires". What he meant was that West Germany ought not to depend too much upon outside support, and it must reinforce its defence. This is just a part of China's attitude towards the West vis-a-vis Russia. It also enjoins consolidation of European Community, build-up of a strong European defence, and caution over force reductions. Now that the Helsinki Accord has been reached on European Security and Cooperation, China is not likely to desist from periodic warnings as to how the Soviet Union is violating it here and there.

Border Dispute

Sino-Soviet confrontation is concentrated along the 4,000 mile long border from the Pamirs to Mongolia to River Amur. Peking's contention is that the border is the result of "unequal treaties" forced upon weak China, largely in the nineteenth century. China alleges it has lost 600,000 sq. km. of territory. It demands revision of the treaties and redrawing of the borders, to which Russia gives an emphatic no. There have been border talks during the last ten years and continue sporadically, but to no avail. Meanwhile border clashes take place now and again, some reported and others not. The upshot is that both sides have reinforced their borders and quite often tension reaches a pitch as if war is imminent. Strategists consequently are always busy with their calculations of the line-up of forces. Such calculations might receive a spurt now that Russia would be rather relieved of its dangers from the West.

The Line-up of Forces

On the Soviet side there are reported to be 45 divisions on the border. The construction of barracks, accommodation for families, roads and railways, and permanent training grounds suggest that it is a "garrison force" permanently to be stationed. This force includes surface-to-surface missiles and 500-mile range *Scale board.* With improved air defence cover, provided by both the Homeland Air Defence Command and the ground forces air defence apparatus, and the powerful Pacific Fleet and its land-based naval arm, these theatre forces are provided a balanced, hard-hitting force for nuclear and non-nuclear strikes. Given the missile strength which is 2,400 strategic missiles under SALT, the long-range air force, and accurate megaton warheads, the Soviet Union has the capabillity to crush China.

China too has 45 divisions in the border areas. but, numerically, this means a larger force than the Russian because a Chinese division has more men. Because of scarce infra-structure and communications China is more vulnerable in the west, but it is strong in the north-east. In the event of a showdown it could cut the Soviet's Siberian railway and carry out bombardment by air of the Soviet Far Eastern cities and military centres.

In regard to Russia's nuclear threat, China views it in three ways. It visualises that Russia may never dare carry out the threat in practice for fear of grave consequences, including the possibility of American intervention. Presuming the threat is carried out into assault, China reiterates what Mao said that it is so big territorially and demographically and that it could not be wiped out. Finally, in the words of Chou En-lai : "We will not attack; but if attacked, we will counter-attack". Counter-attack includes nuclear retaliation, which may be on a lower scale than that of Russia but now growingly would be of an order that Moscow would have to seriously worry about. China has succeeded in creating something like a nuclear deterrent.

No Soviet strategist can discount the might of PLA. This would be supplemented all along the border by guerrilla hordes, who happen to be among the world's most seasoned fighters. They would carry raids deep into the Soviet territory and give no peace to the Soviet occupation forces. If Vietnam is an example, they could do this idefinitely.

TERRITORIAL DISPUTES AND PLA'S ROLE

China's concern on the score of territory is not confined to its border with Russia. It embraces three other areas : the Himalayan region, the West Pacific, and Taiwan.

The Himalayan Region. Here China has a 16-year old dispute with India. The territory involved is Aksaichin, to the west of Tibet across the Himalayas and measuring 12,000 sq. miles; and the Himalayan slope facing south-east Tibet measuring 37,000 sq. miles. Having got heated up in the late 1950s, the dispute led to the India-China war in 1962. After overrunning the eastern sector, the Chinese forces withdrew to the crest of the Himalaya, thereby evacuating the disputed slope, but in the western sector they did not leave Aksaichin and still continue to occupy it. Since then both sides have reinforced their border defences.

The western sector has since been upgraded in the Chinese calculations. Through Aksaichin passes the route from Tibet to Sinaing, thus linking up the two Chinese provinces. Aksaichin is a part of Kashmir, lying to its north-east. The north-west of Kashmir is under Pakistan's occupation. India lays claim to the whole of Kashmir. The Pakistan-occupied part of Kashmir is adjacent to Sinkiang. Two important roads have been built under Sino-Pak

collusion, running through Pamirs passes on the border. One of them is linked with Pakistan's capital and could be further extended down to Karachi, thereby linking Sinkiang to the Indian Ocean. This line of communication gives China an outlet into the outside world of land and seas; and above this line now, through the skies of Pamir, China's civil air line has chalked out a route from Peking to the capitals of the Middle East and Europe. Thus Kashmir is no longer a matter of concern between India and Pakistan only but also between India and China; and across the mountain walls the forces of the two countries keep a standing vigil. Indeed this confrontation has further extended all along the Himalaya, where strategic border roads, air bases and arms stocking centres have been constructed. To safeguard China's southern flank has become a vital task of the PLA.

West Pacific. Here China's claims are twofold. One revolves round the question of territorial waters and continental shelf. In the absence of a universally accepted maritime law, China lines up with some of the Latin American states and claims jurisdiction to a distance of 200 miles out in the Pacific. This area is known to contain oil. China was warned that it would not accept any unilateral arrangement for exploration or exploitation of the commodity. And China's "midget fleet", in conjunction with submarines, are capable of looking after its interests, by use of force if necessary.

Force has in fact been used to bolster claims over some of the islands in the Pacific. An armed clash between the forces of China and South Vietnam (non-communist regime under Mr. Thieu) took place in January 1974 over the Paracel Islands. Located in South China Sea, this group is less than 200 miles from the Chinese island of Hainan and about the same distance from the coast of South Vietnam. The Sprately group might be the next target. And there is also a dispute over the Senkaku peninsula presently under occupation of Japan.

Taiwan. This falls in a special category. Both Peking and Taipeh agree that Taiwan is a part of China, but the dispute is as to who is the rightful authority. Taiwan's expulsion from UN, followed by mainland China's entry, has enhanced the latter's claim. As a part of detente, and presumably by an understanding with the USA, Peking is not pressing its claim at this juncture through the barrel of the gun. Besides, there are two other considerations. Any use of force would be countered stoutly by Taiwan which has a highly trained force, and as Taiwan puts up resistance foreign powers might intervene, thus sparking off what might turn out to be a major conflagration in the West Pacific The role of the PLA is thus twofold. It must ensure adequate defence against the threat of a surprise bombing attack or surprise landing on the Part of Taiwan's forces; and it must develop an

overwhelming superiority to capture Taiwan by storm in favourable circumstances.

CONCLUSION

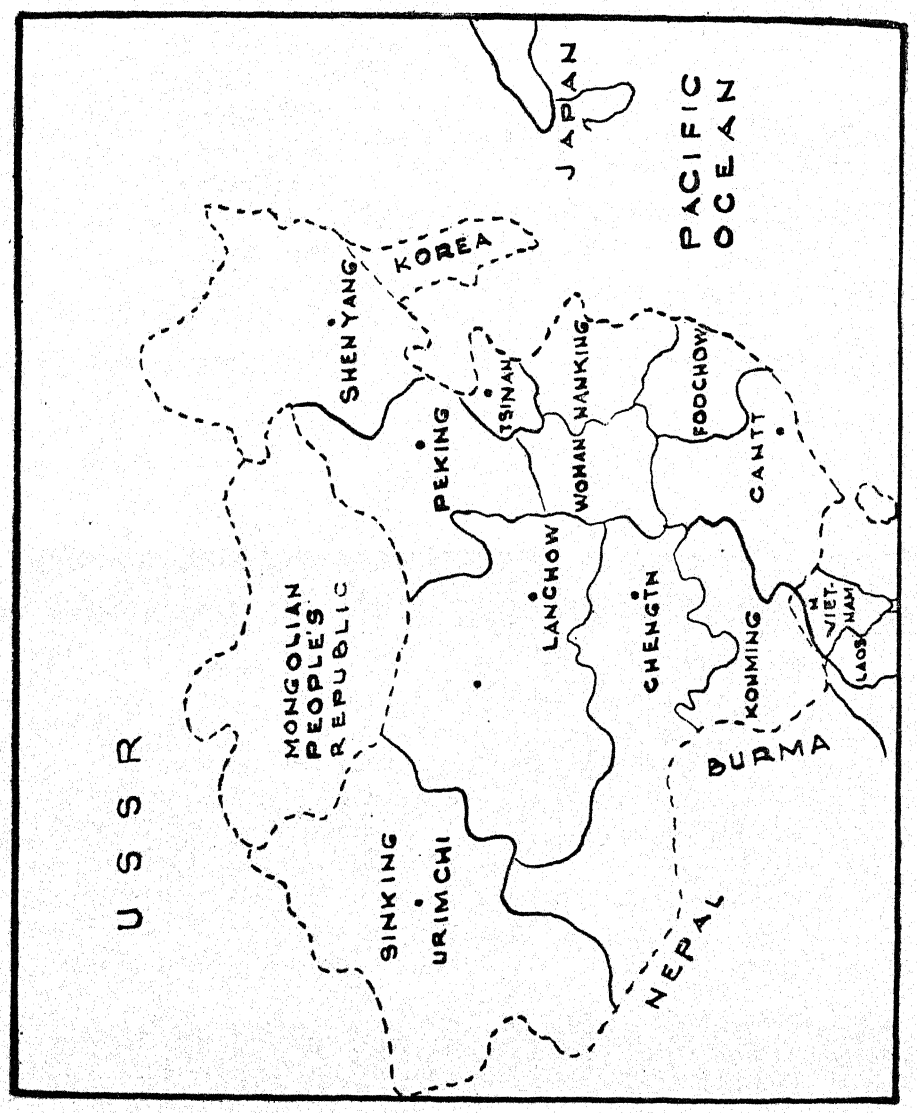
In the mid-1970s China emerges as an authoritarian, disciplined, powerful state. It has cultivated military power both as a cult and as a necessity. In turn, military power has contributed to the growth of the state. It is expected that this action-reaction would continue. What the PLA and its second-line support is tomorrow would thus be influenced by China's internal conditions. It has been built as a highly indoctrinated force on the basis of continuing revolution, dictatorship of the proletariat, and supremacy of the Party. Whether the idealistic fervour lasts after Mao is however an open question. Even under him the PLA has been manipulated not strictly in conformity with the "line" —as for instance in the Cultural Revolution. Thus after the disappearance of the present leadership, a bid for ascendency on the part of the army should not be ruled out. The effectiveness of this would depend to some extent upon its own solidarity, for there still do exist factions in the Army. But the Army has built up traditions of unity and tasted its fruit. In any threat of internal upheaval it may be expected to become a powerful factor of consolidation and stability.

External strategic environment must influence it, in particular power equation in the West Pacific, India on the southern flank, and above all the Soviet Union. This environment seems to exert a concerted effect upon China's military power, all favourable. In concequence, the military power seeks to be diversified, to be enhanced, and to rise to the exigencies of the new strategic tasks. This is all the more compulsive if conflict with the Soviet Union does not abate. And while confronting the Soviet Union, as also the conditions prevailing in Asia, China must adopt not only sophisticated methods but also traditional methods. China's military power is thus likely to remain an extraordinary mix of nuclear, conventional, and guerrilla forces.

The era when this military power was characterised as of defensive nature is over. The PLA has now the capability to go on the offensive. How precisely it would act would depend upon the situation—for instance defensively against the Soviet Union and offensively against the small Asian country. Availability of initiative is one of its prized assets. Other assests are the swelling arsenals, the high place accorded to it in the national hierarchy, and the pride that it is a prime instrument of winning a world power status for China.

MILITARY REGIONS OF CHINA AFTER SHAKE-UP IN AUGUST 1973

	Military Region	Commander
1.	Shenyang	Li Te-Sheng
2.	Peking	Chen Hsi-lien
3.	Tsinan	Tseng Ssu-yu
4.	Nanking	Ting Sheng
5.	Foochow	Oi Ting-chun
6.	Wuhan	Yang Te-chih
7.	Canton	Hsu Shih-yu
8.	Chengtu	Chin chi-wei
9.	Kunmihg	Wang Pi-ciheng
10.	Lanchou	Han Hsien-chu
11.	Sinkiang	Yang Yung


JAPAN
PACIFIC OCEAN
KOREA
SHEN YANG
PEKING
TSINAN
WOHAN
NANKING
FOOCHOW
CANTT
LANCHOW
CHENGTH
KONMING
N VIET-NAM
LAOS
BURMA
NEPAL
SINKING
URIMCHI
MONGOLIAN PEOPLE'S REPUBLIC
U S S R
C H I N A

THE CASE FOR AN ARMY COUNCIL

LIEUT GENERAL M L THAPAN, PVSM (RETD.)

THE Official Report of the Ministry of Defence, presented annually to Parliament, states that "the supreme responsibility for national defence rests with the Cabinet. All important questions relating to defence are dealt with by the Committee on Political Affairs. The Defence Minister is a member of this Committee." The report than goes on to say what is the composition of committees assisting the Minister of Defence, the organisation of the Ministry and the three Services Headquarters. What it is unclear, however, is the precise responsibilities of the Minister of Defence, of the Chiefs of the three Services, and the distinction, if any, drawn between them. Members of Parliament and citizens of the Country, in consequence, are left in ignorance as to where the principle of accountability may be applied. The cynic may say that this is universal with us, but this is not necessarily so. A significant difference between the portfolios of say Food, Railways, or Communications, and Defence is that; whilst the former may be held accountable against Voted demands, in the light of their actual performance during the year; the latter is not capable of any such assessment, unless the year coincides with a War or similar emergency, where the organisation and execution of our Defence measures, can stand scrutiny.

The Chinese aggression against India, culminating in the attack of 1962, provides a classic example of what complacency and blurring of responsibilities can do, to the Defence apparatus. Although both the then Minister of Defence and the Chief of Army Staff tendered their resignations, there was no organisational compulsion for them to do so. The former was obliged to leave because of political pressure; the latter left voluntarily, as an acknowledgement of professional failure. Despite this shattering experience, the higher organisation of Defence remains unaltered. We seem to be immune to the need for change. Let us analyse the Defence Organisational Structure, Prior to Independence, (strictly before the formation of the Interim Government in 1946), the Commander-in-Chief, India, who belonged to the Army and excercised comand over his own and the other two Defence Services, was the Military Members in the Viceroy's Executive Council. He, therefore, had direct access to the highest Executive of Government. Political and professional responsibility were vested in the same person; the Government could not plead ignorance of the implications and needs of Defence. After Independence, the post of Commander-in-Chief, India, carrying dual professional and political responsibility, was abolished. Political responsibility was allotted to a Cabinet Minister, whilst command of the Defence Services devolved on three Chiefs of Staff and Commanders in-Chief. In 1954, for

* Article reproduced by courtesy of 'The Tribune'.

some curious reason, possibly allergy to the past, the suffix 'Commander-in-Chief' was dropped from the three Service titles, and the Heads of the Defence Services were designated as the Chiefs of Army, Naval and Air Force Staffs, respectively. However, this redesignation did not relieve them of their command functions and, to this day, they continue as the Executive Heads of their Services. The Chiefs of Staff, collectively, no longer have direct access to the Cabinet.

It is a recognised principle of good administration that an executive must have control, not only over his executive machinery, but also on the resources needed to perform allotted tasks. A steel plant may have workers of the highest technological skill, but can show no output if it is starved of ore or power, or both. Likewise, the Defence machine, having been given its tasks, needs the wherewithal to be capable of performing them. "For want of a nail, a battle was lost." The security of the country brooks no risks; one political or administative error may cause grievous loss of men, territory, and even our free way of life. Does our higher defence organisation ensure that this cannot and will not happen? The dispassionate and informed critic will not acquiesce readily, so long as he is aware that the Executive Heads of the three Services do not have control over the production and procurement of armament and defence material. In our setting, this responsibility is diffused over a number of departments in the Ministry of Defence and other Ministries of the Centre, where Service representation and voice is minimal, or non-existent. To narrow this study down to one Service, the Army, which is the largest of the three, by virtue of the geographical size of our country, the land frontiers which it is required to defend, and the threats posed to us across them by hostile, or potentially, hostile neighbours; what is needed, as immediate reform, is the setting up of an Army Council, replacing not only the existing Committees which "assist" the Minister of Defence, but also the worn out bureaucratic procedures, of a colonial era, which we have improved on, beyond the dreams of its creators.

The Army Council suggested would be the highest decision making body of the Defence Organisation, taking direction from the Political Affairs Committee of the Cabinet. It would comprise of the Minister of Defence (Chairman), other Ministers in the Defence Ministry (Members), the Defence Secretary (Permanent Service member and Secretary to the Council), the Chief of Army Staff (Permanent Army Member), the Vice Chief of Army Staff (Permanent Army Member), the Deputy Chief of Army Staff (Permanent Army Member), the Adjutant General (First Army Member), the Quarter-master General (Second Army Member), the Master General of Ordnance (Third Army Member), the Secretary Defence Productiion (First Service Member), the Secretary Defence Supplies (Second Service Member), the Scientific Advisor to the Minister of Defence (Third Service Member), and the Financial Advisor, Ministry of Defence (Finance), (Permanent Service Member).

The Army Council would hold regular meetings to transact business, at least once monthly, with a formal agenda before it, containing proposals from the Army and the Ministry. The presence of all Army and Service members, (other than Permanent members), may not be obligatory for consideration of certain agenda items, which do not fall within their sphere of duties, and may be dispensed with by the Chairman, on the recommendation of the Permanent Army/Service member under whom they work. The Council would have full power to call on any Head of Department or Service, in the Defence Organisation, to come before it to tender advice. Decision making by this body would be by consensus; where there is divergence of views between the professionals and the administrators, provision must exist for the Chief of Army Staff to present his case before the Political Affairs Committee of the Cabinet, in person, before a final decision is taken.

The setting up of this Army Council would not, by itself, rid the bureaucratic machine of its sloth and prevarication. The reform must be carried all the way through two lower tiers of the administration; to the Joint Secretary/Principal Staff Officer (Army) /Additional Financial Advisor, and Deputy Secretary/Director (Army) / Deputy Financial Advisor levels, with suitable delegation of powers to these duly constituted bodies. Their regular meetings would be held more frequently, at least once fortnightly. Each item on the agenda of these meetings would be put forward in a self contained statement of case. Decision making would again be by consensus, with a right of appeal to the next higher body, up to the Army Council, if there is failure to reach agreement on a proposal. And, once these bodies have been created, since there will be formal minutes of their deliberations, which will be circulated to all concerned, the need for initiating proposals on files, and concomitant endless recording of views, will have disappeared.

What would the setting up of an Army Council and lower level decision making bodies achieve, which the existing Organisation lacks ? The first and foremost would be the creation of an instrument, which would compel integration of effort, joint responsibilty and a sense of involvement. The legacy of a colonial administation, with its chasm between the policy makers, the purse string holders, and the executants, would disappear. Decision making and responsibility would be inculcated at each level; 'passing the buck' would be hazardous, being exposed too readily. The second achievement would be the establishment of an institution, to regulate the flow of business, and to keep the needs of the Army under constant review, from the lowest to the highest level. Dependence on personalities who fill key assignments, and who are not always cast in the same mould of competence, would cease. Thirdly, it would afford both the politician and the civil servant an insight into the complexities and ramifications of modern defence. The Minister of Defence would be close not only to the Chief of Army Staff, but also to his deputies and Principal Staff Officers at Army Headquarters, and

receive expert professional advice, at first hand. Fourthly, it would keep the Political Affairs Committee in close touch with Defence matters; a vital necssity for the formulation of realistic foreign and economic policy.

And last, but not least, it would lighten the burden of the Chief of Army Staff, who carries tremendous responsibilities on his shoulders. In the final analysis, it is he who is answerable to the Country and to his men, if chinks are discovered in his armour. The measures proposed will do much to relieve him of tiresome routine and give him more time to devote to operational planning and visiting his troops. They number over eight hundred thousand.

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FLEET AIR ELEMENT — A CASE OF VITAL NECESSITY

COMMANDER K A S Z RAJU

THE Yom Kippur war has precipitated some important developments in the Indian Ocean area. The Indo-Chinese squabble and the Indo-Pak skirmishes are no longer of any global interest in this region. The real point of significance is the deep interest and rivalry of the Super-Powers here, whether for oil or other reasons, and the great rush for arms acquisition by countries on the northern shores of this Ocean.

No matter how many world bodies back our proposal of making the Indian Ocean a zone of peace, the new weapon of political arm twisting, namely oil, will destine it otherwise. In the foreseeable future, that is till such time as nuclear energy can substitute oil on a large scale, circumstances place India in the very heart of an area of tension. Therefore, it is neither the threat from our North nor our West but the happenings in the Indian Ocean that will cause India serious concern.

MILITARY AND POLITICAL SCENARIO

Iran has made a 2.5 billion arms purchase including surface-to-surface missile carrying ships, long range missile-equipped maritime reconnaissance aircraft, etc. Pakistan has done like-wise and she is reported to be doubling her submarine fleet. Saudi Arabia is investing a billion dollars in acquiring a modern navy. Every country around the Gulf is, in fact, in the process of large-scale arms build-up.

In the light of all this intense activity the writing on the wall should be clear to even a country like ours with an avowed policy of non-aggression. If we are to continue as a truly free and non-aligned nation, we must be able to infiuence the course of events in the Ocean around us.

The first thing to do is, of course, to step-up our diplomatic endeavours to keep the Indian Ocean area as free of tension as possible. India holds a key position in the Third World and we must generate sufficient force within this world to make its voice heard and listened to.

Diplomatic move alone will not, however, sustain us at a critical juncture. If India is to be taken seriously and is to give a direction to the Third World it is imperative that we urgently enhance our naval strength. In International gamesmanship, war is the last resort. Good diplomacy backed by reasonable naval strength will enable us to support small nations to withstand pressure from bigger countries.

NAVAL BUILD-UP

What direction should our naval build-up take? With our poverty-stricken economy we can hardly emulate the oil-rich countries. We are in no position to make billion dollar purchases nor can we police the high seas with mammoth fleets led by massive nuclear-powered aircraft carriers. Our solution must necessarily suit our budgetary restraints and we have to restrict ourselves to only absolute essentials to counter the emerging maritime threats.

In the Arabian Sea military scenario, maritime build-up is leaning heavily on missile sophistication, both airborne and shipborn, and sub-surface build-up. The first requirement for succssful anti-submarine war is good intelligence. If we are to maintain the freedom of the sea lanes for the use of our mercantile, we must at all times keep track of enemy submarine movements, firstly to destroy them at the very onset of hostilites and secondly to reroute our ships through safe lanes. It is therefore necessary to have a first rate maritime reconnaissance capability. We can ill afford to waste any more time to fill this vital gap in our maritime capability.

ORGANIC AIR ELEMENT

Airborne stand-off missile capability, shipborne surface to surface missile capability, etc. of enemy forces all call for the fleet to be equipped with an organic tactical air element. Recently an eminent writer suggested that shore-based aircraft can be used for supporting the fleet adequately. This may be possible if we were concerned solely with coastal threats. Can such aircraft support the fleet or convoy escorts 500 miles at sea ? And what are the costs involved in providing such support from shore bases ? Or would any-one suggest that India forsake her right to use the seas away from her coast in times of tension and war ?

Not very long ago an exercise called Highwood was conducted in the UK. The object of the exercise was, "Can the RAF give the Navy the kind of air support it requires at sea ?" RAF forces involved included long-range strike aircraft like Buccaneers, Phantoms, Lightnings, Hunters, and Victor tankers—in fact, the entire RAF Strike Command. The exercise area covered only the North Sea from the North-east coast of UK to Norway and the West coast of Scotland. The terse sum-up of an eye witness military analyst was, "An exercise which failed in its purpose to show that the RAF could provide the fleet with necessary air cover." The exercise revealed enough to show that a policy of having shore-based air support alone is "an unacceptable risk to national security." If this be the case in a peacetime exercise, what would happen in war when air support is required at a multitude of places and theatres ? Cost analysis also proved that shore-based air support

to a fleet costs many times more than a representative fleet-based air element.

How then is our fleet going to retaliate against long range surface-to-surface missiles, airborne stand-off missiles, maritime reconnaissance aircraft equipped with high performance radar, sophisticated electronics counter-measures equipment, etc. ?

The answer lies in equipping our aircraft carrier, INS Vikrant, with fixed wing aircraft that can strike at missile carrying enemy units, both surface as well as airborne, at a range outside the enemy's weapon capability. This function is of vital importance if we want our fleet to be a credible one. It is immaterial by what name such an aircraft is known. It could be a Skyhawk, a Harrier or a Freehand or any other that meets the role requirements. A cost of Rs. 100 crores, which has been mentioned as the cost of such a capability, is small when viewed in the light of our over all defence budget and the fact that this vitally needed investment will be amortised over several years of use of these aircraft.

AIRCRAFT

Both the Skyhawk as well as the Harrier and perhaps the Freehand (confirmed details of which are not available) have many points to recommend their acquisiton. The Harrier has been especially built for optimising effectiveness when operated from small confined spaces. One of its many credits is ease of maintainability together with high reliability. In a recent 10 days Sortie Rate Validation Test called exercise Battle Cry the US Marine Corps "thoroughly exercised the operability, Command and Control, maintainability and reliability." The results of the SRVT far exceeded all expectations, the cumulative results being 15% better than what was expected. Environmental and compatability trials in our own tropical conditions are reported to have been equally successful.

The Harrier can perform a multitude of roles-air-to air interception, surface strike, photo/maritime reconnaissance, close support to the army and amphibious forces, etc. Its weapon capacity includes bombs, rockets, guns, air-to-air and stand-off missiles. Its radious of action is considerably more than that of the current fighter stirke on board our carrier. The Skyhawk, which has an excellent record of performance in the US Navy, can also perform equally admirably.

It is often difficult to forecast future geo-political scenarios and certainly no one had foreseen the important role Vikrant and its aircraft were able to play in the Dec 71 conflict. There is, however, no gain-saying that building up our naval capability to meet specific arms threats can only enhance our diplomatic stances in an area which is fast becoming a hot bed of international politics.

THE DEFENCE OF WOOLPRESS, KUT-AL-AMARA

MAJOR GENERAL H. H. RICH

INTRODUCTION

The 29th April 1976 marks the 60th anniversary of the surrender through starvation of the garrison of Kut-al-Amara in Mesopotamia (Iraq). The siege began on 5th December 1915 and lasted 147 days.

There are some forty-five known survivors in Great Britain, of whom the youngest will be eighty years old. In this number are four officers of the old Indian Army. Three of them were among those who landed in Mesopotamia in November 1914.

Here we are endeavouring to remind the public of an event which, although of great concern to those who took part, merited only a short paragraph in Winston Churchill's *The Great War*.

Two-thirds of the troops taking part were Indian nationals. Six of the regiments were from the former Bombay Presidency Army. In the hopes that members of the armed forces of the Republic of India may be interested in those 'bow and arrow' days, I enclose a short article on a minor sector of the defence of Kut-al-Amara which was manned entirely by Indian soldiers.

We do not know if any of our Indian comrades in arms are still alive today, but we trust that some are and send them our greetings and best wishes.

The 2nd Battalion, The Rajputana Rifles, the 120th of the narrative, has a painting of the Defence of Woolpress. It is a very accurate reconstruction of the Turkish attack on the village by Lionel Edwards. I have, unfortunately never seen the original, only a photograph of it, but it vividly recalls that night even though the Turks are shown nearer to our wire than they were.

I joined the U.S.I. as a life member in 1913/14 and still read the Journal with great interest, but I must confess that the jargon and abbreviated titles of today are, to me, in the realms of science fiction.

Good luck to India, her army and the Journal.

SIXTY years ago, after the abortive attempt to capture Baghdad with insufficient strength had failed, Major-General Townshend's Force was compelled to retreat to Kut-al-Amara, a small town on the River Tigris. His troops of whom two-thirds were Indian had hitherto not been defeated in battle since they landed in Mesopotamia in November 1914.

In a year's campaigning the 6th (Poona) Division had advanced over 500 miles by river from the Base at Basra. Battles had been fought in temperatures ranging from 100 to 120 degrees and in the intervals the only protection from

the sun had been tents. Battle casualties and sickness, especially the latter, had taken their toll. There was no leave to be had and amenities for recreation were non-existent. Through cold weather and hot the plague of flies never abated.

Hospital conditions, except at the base, and here they were nothing to boast about, were primitive. The medical services were meagre and there was an appalling deficiency of normal hospital comforts. Owing to a complete lack of ambulances. the wounded suffered agonies in springless carts.

Rations, though monotonous, were adequate. The rivers were the only sources of water for drinking and all other purposes. No force could be away from them for more than two days.

On 3rd December 1915, after a retreat of nearly ninety miles, the last fifty of which were covered in thirty-six hours, the tired troops reached Kut (pronounced to rhyme with 'put').

The General chose to make his stand on the left bank of the river in a U-shaped bend which was about a mile and a half across and the same in length. The town itself was in the curve of the 'U' opposite the Shatt-al-Hai, a small river which flowed intermittently southwards. On the right bank of the Tigris and slightly upstream of the town and the Hai was a small Arab village, eventually named Woolpress from an iron frame which was used for that purpose.

Two Indian regiments, the 110th Mahratta Light Infantry and the 120th Rajputana Infantry, with a total of eight hundred combatants, held the village unrelieved throughtout the 147 days of the siege. It is solely with their activities that this narrative deals.

Within two hours of arriving at the outskirts of Kut, and without having drawn rations, the troops embarked in a river steamer with orders to clear and hold the village. Most of the inhabitants fled after putting up a token resistance. The 110th were withdrawn in the evening together with remaining women and children, leaving the 120th to hold the position. Next day the 110th returned and Woolpress was organised for defence.

The area held was six hundred yards by three hundered. The houses at the northern end occupied about two-thirds of the space and the press in a stoutly walled enclosure, most of the remainder. The 120th held the greater part of the village and the 110th its southern end and the press compound.

The trenches followed the outline of the village just outside the walls of the gardens and houses which gave cover and shelter to the garrison. The walls were bullet, but not shell proof. Tunnels and communicating trenches led back into the houses. There was no second line, as the river was only three hundred yards to the rear.

Although cooking could be done under cover, the only place for the latrines was in a comparatively open area between the village and the press compound.

A company of Sappers and Miners, assisted by the garrison, erected a double apron barbed wire fence in front of the trenches. When they withdrew, the two regiments were on their own with Major Pocock, 120th, in command. It was not until 5th December that rations arrived for the 120th, but in a recently inhabited village there was sufficient food to stave off the immediate pangs of hunger.

In the southern end of the post mounds of barley, amounting to some hundreds of tons, were found. This was reported to Townshend's headquarters, but no action was taken for its removal for six weeks or so. When it was shipped across, the top to the depth of a foot and more had sprouted and a large amount wasted. In fact the troops on the right bank were accused of eating three hundred tons of it. This worked out at half a ton a man; no mean gastronomic feat in forty days.

Although the Turks started their investment of the left bank on 5th December 1915, the official date of the beginning of the siege, it was not until the 8th that their first troops approached Woolpress. By then our trenches had been completed without interference. When the enemy began to dig we were able to make it as hazardous as possible by continuous sniping from our protected positions.

They were quick diggers and soon there were only their heads and spades to aim at as they appeared above ground. One Turk was a humorist. He raised and lowered his spade as if it were a snap-shooting target on the range. Finally it was down longer than usual and when it did come up, a bandage was tied across it.

At the northern end of the village, the enemy front line was less than a hundred yards away. Then it struck off at an angle until, opposite the press, it was four hundred yards off. Behind this trench and on some higher ground the Turks built further lines of fortifications.

Early in December the enemy started to dig a trench about fifty yards from our wire during the hours of darkness. They did not occupy it by day, but when they came back the next night, we were ready for them. A party of the 120th charged out and drove the Turks away, killing two. The trench was filled in and the enemy made no further attempts to dig forward positions.

Except for normal visual signal communications, the only link between the village and the main force was the armed tug HMS *Sumana*. Trips had to be made in the dark, as the river was under observation and shell fire

from the Turkish position. Luckily the river bank and the landing place on our side were not within sight of the enemy.

We were told we would get no help from the main force and, if attacked, were to hold on 'to the last man and the last round'. In the early days there was a distinct feeling of tension, as we expected an all-out assault on the village. When this did not materialise, we came to the conclusion that the enemy was no nearer capturing Kut if they did overrun us. All they could have done would have been to make life in the main position extremely unpleasant, as guns from the Woolpress area could have fired point-blank across the five hundred yards of river.

In Woolpress each regiment had its own first aid post, a hole in the ground twenty feet by ten, which could deal with slight wounds and sickness. Anyone requiring treatment for more than a few days had to be sent to Kut where the hospital arca was in the main bazar with the small open shops being used as wards. A disused *hamam* was the most popular part, as it was well underground and not so open to shell fire as the rest.

In any small beleaguered place, hospitals are as much in the 'front ine' as any other area. In Kut with artillery positions all round them, they had more than their fair share of shelling and bombing from the air. In addition to this there were other drawbacks. A young Territorial soldier wrote—

'Conditions in hospital were appalling and no man sought admission except in the most extreme circumstances. Anywhere in the open trenches was preferable to being tortured by bugs, fleas and mosquitoes in overcrowded hospitals devoid of most medical requirements and grossly understaffed'.

Throughout December the Turks made various attacks on the main position on the left bank, culminating in a formidable assault on the Fort which was the keystone of the north-western area of the defences. This attempt, on the 24th, was only held up after vicious hand-to-hand fighting in which the enemy suffered such heavy losses that no other large scale attack was made. In conjunction with their offensives, the Turks subjected Woolpress to heavy gun and rifle fire, but made no forward movements.

The village was under spasmodic shell fire all through the siege, mostly from older types of guns which were not accurate and had only solid shells. The noise of the firing of the gun could be heard before the shell arrived, not so with the 'whizz-bangs' which were used occasionally. With them the burst of the shell was the first intimation and there was no time to take what little cover there was.

The Turks had an old mortar, dating back to the days of the Crimean War. It threw a huge canon-ball like bomb with a diameter of eighteen inches, made of bronze over an inch thick and filled with dynamite. It was

very erratic and could be heard meandering through the air with a queer moaning noise. It was known to the soldiers as 'Flatulant Frankie' and other such names.

About mid December the weather started to get cold and the men who were in thin khaki and had only one blanket, felt it keenly. In January there was frost with as much as eleven degrees being registered at night. The diseases of winter were prevalent with pneumonia as the most dangerous. Few recovered in the primitive hospital conditions. As the weather became warmer again, malaria and dysentery took their toll. Finally in the conditions of starvation, scurvy and beri-beri were prevalent.

Early in January the enemy produced aeroplanes. They used to come in low over Woolpress to bomb Kut. In fact their first target was our latrine area where the men were at their daily habit. No damage was done, but there was an unseemly scamper for cover. Thereafter we were more or less left alone and enabled to have a grandstand view of the bombing of the town, from our sheltered river bank. The bombs which had been captured from us during the retreat, did little damage, but one unfortunately hit a hospital and killed several patients.

After the first flight we rigged up an anti-aircraft machine gun on a barrel. It may not have hit the planes, but it certainly made them fly considerably higher. Townshend soon forbade us to use it.

On the night of 20th January, the Turks made their last and only determined attempt to carry the vilage by storm. A sudden silence, followed by suspicious noises alerted the garrison. It was so dark that nothing could be seen. By chance a flare landed directly on the advanced enemy who were lying concealed only fifty yards from our wire. As we saw them squirming to get away from the flare, a fierce fire from machine guns and rifles was opened and after half an hour they had had enough and ran back to the shelter of their trenches. When it was light 43 corpses were counted. Patrols going out that night found bundles of straw that the Turks had carried to help them cross our wire.

Ever since God warned Noah, who was undoubtedly a Marsh Arab, of the Flood, the inhabitants of Mesopotamia knew of the annual inundations. There were two; the minor one which occurred in January was caused by local rain and the major in March, was the result of the melting of the snow in the mountains of Eastern Turkey which are the sources both of the Tigris and Euphrates Rivers.

In January the river suddenly rose eight feet and some of our trenches became water-logged. It was a reminder to start building a breastwork against the main flood. There was little earth available and the houses and

walls had to be used, leaving the village a mere shell with only a few of the outer walls standing. The finished breast work was fifteen feet wide at the bottom and ten at the top. It was five feet high. Even this massive work was only just sufficient to withstand the flood at its height.

When the river started to go down a few days later, we could see fishes, some quite sizeable, flapping in what had been no-man's land. That night our men collected some fifty pounds of good edible fish, a very welcome change in our and their diet.

The main floods in March were a different matter. The whole of the area on the right bank was flooded; Woolpress was an island in a lake of water, five feet deep. The Turks were compelled to evacuate their trenches for higher ground eight hundred yards away. At one time it was thought that the weight of water would breach the breastworks and plans were made for the evacuation of most of the troops by means of the *Sumana*. Had it happened we should have been swept into the Tigris long before she arrived, luckily it didn't.

All danger of attack was now past; we were able to enjoy a full night's rest. It was a great relief after three and a half months of incessant firing at eighty yards range. Rifles no longer barked in our ears. Strangely it took a little time to adjust to this absence of noise. Hitherto, noise meant normality and safety, silence was unusual and put us on the alert.

General Townshend had always been optimistic about a speedy relief and had talked about the end of January as being a likely date. When the early attempts of the Relieving Force to break through the Turkish positions downstream failed, he made the first thorough survey of all sources of food. It was then found that we could hold out for a further eighty-four days.

Ever since early January we had heard the guns of the Relieving Force intermittently pounding the enemy and gradually, very gradually, getting nearer. These early rebuffs brought home to us, for the first time that relief might be delayed, but no one doubted that we should eventually be freed.

On 8th March there was continuous gunfire and we could see the flashes of the guns and the bursting of shells only a few miles away. We waited expectantly, but the firing died down and there was an ominous silence. The attack had failed.

Townshend strangely made no effort to aid the Relieving Force either by additional gunfire or by threats of attacking the Turks round Kut

Everyone in Woolpress had nothing but praise for the efforts of those

downstream who were striving to free us. Those of us who had been in Mesopotamia through the floods of 1915 knew that their task would now be more difficult. The marshes would be full of water, the ground sodden and frontal attacks only possible. But nothing damped our optimism of eventual relief.

The food situation in Kut could be divided into three periods; seven weeks of plenty, ten weeks of adequacy gradually diminishing to four weeks of starvation.

Until mid January rations were on the full scale except for vegetables which were non-existent. Various experiments were made with grass as a substitute, but they were not satisfactory and in some cases led to death through poisoning. In Woolpress, however, in the last ten days of the siege we found a palatable weed in the marshes which put a stop to the scurvy then rampant.

The appendix shows the general lowering of the ration scales, but the dates chosen are arbitrary and the reductions took place gradually as the efforts of the Relieving Force came to naught.

The first marked change was on 21st January when the garrison was reduced to eating horse and mule flesh. Although dispensation had been given by the various religious leaders in India, most Indian troops would not eat it. Consequently they were worse off for rations than their British comrades. Although there were exceptions, it was not until 17th April that starvation forced them to accept it, but by then it was too late for it to have produced any marked effect on their physique.

In Kut town it was possible during the first half of the siege, to buy extras from the Arab townsmen, but not so in Woolpress. One or two hand grindstones had been unearthed in the village and, by working them twenty-four hours a day, about an extra two ounces of meal were provided for every one. On balance the troops were probably slightly better off, but not the British officers.

Firewood for cooking ran out early. Luckily Kut was a refuelling depot for river steamers and there was a supply of crude oil. The Sappers manufactured a reliable contrivance by which lighted oil was trickled under a kind of field oven, suitable for both the British and Indian styles of cooking. The only sufferers were the cooks who became coated with an oily soot which was almost impossible to get rid of.

Sumana brought rations over every ten days or so. Sometimes there were small deficiencies in the food we got. Not a great amount, but serious when we were on short commons. We complained; our brigade supply officer assured us that he personally supervised everything put in *Sumana*. We put a

discreet watch on the trips. Nothing was pilferred on the way across. Our Quarter-Master was sent over to the other side, where he found out that the loading place could just be seen from the supply officer's dugout. It was from there, several hundered yards away, that he did his personal supervision.

As can be imagined life in such a limited area was one of boredom. You were either on duty in the trenches or at the parapet, sheltering behind what little cover there was, on the river bank watching the shelling or bombing of of Kut, or asleep. Little movement was possible in daylight and the longest night walk was as far as the landing place, a full four hundred yards.

However we had our moments of entertainment. One was when the CO decreed that we teach the I Os and NCOs English. The 120th were lucky, as we still had four officers who had served with the regiment before the war. They knew the men and were well known to them, so the task was not a difficult one. After some weeks of linguistic efforts, the CO's ardour was somewhat damped when he came across a senior IO raging at some mishap and shouting 'bloody damn, bloody damn'.

Our Sappers and Miners, assisted by mechanics of the Royal Flying Corps, were very ingenious. They made trench mortars out of the cylinders of the Gnome engine of an aeroplane. One was sent over to Woolpress. It had a fixed mounting set to propel the bomb its maximum distance. A small bag of cordite had first to be inserted into the cylinder with a length of slow fuse protruding from the sparking plug hole. The bomb was an old jam tin filled with nails, bits of metal and, sometimes, enemy shrapnel bullets which had been laboriously collected in the main position. The jam tin was mounted on a circular piece of wood which fitted the bore of the mortar. A piece of fuse made contact with the bag of cordite. Its length had been nicely calculated to explode the bomb at a preselected time.

We always cleared a section of the trench before firing. The mortar was roughly aligned in the direction of the Turkish trenches. Some bold man lit the fuse and fled round the nearest traverse. We waited anxiously.

Sometimes nothing happened; sometimes there was a plop and bomb would be blown out of the mortar, with luck just to clear our wire. Normally it would reach no-man's land and occasionally explode. Once and only once, a bomb sailed gloriously as far as the Turkish position and exploded as it was designed to do.

Another improvisation was the illuminating rifle grenade. This consisted of a small tin said to contain a parachute with some incendiary material attached to it, fitted to a cleaning rod. We firmly fixed a rifle to a tripod so that it pointed out through a loophole in one of the houses. As we did not fully trust our Sappers, a long string was attached to the trigger.

We tried the contrivance on a windless night; or so we thought. The grenade went on its appointed course, the parchute opened and the flare was magnificent. There were shouts of approval both from our and the enemy trenches. The flare drifted slowly back over the village lighting up our position, but leaving the Turks in utter darkness. Luckily they were too enthralled to open fire on us. Our CO wouldn't let us try it again.

There was fishing. If you had a bent pin, a piece of string and a dead mouse you were almost certain to catch a fish. Just below high water line were loathsome types of mud fish. In normal times they would have made you sick even to look at them. In Woolpress they became a luxury which we ate with relish.

One day a solitary goose flew over the Turkish trenches. A single shot rang out and the goose fell close to them. It was rapidly retrieved. Thereafter we knew how strongly the enemy trenches were held. Any bird was greeted with a feu-de-joie, but no more were hit.

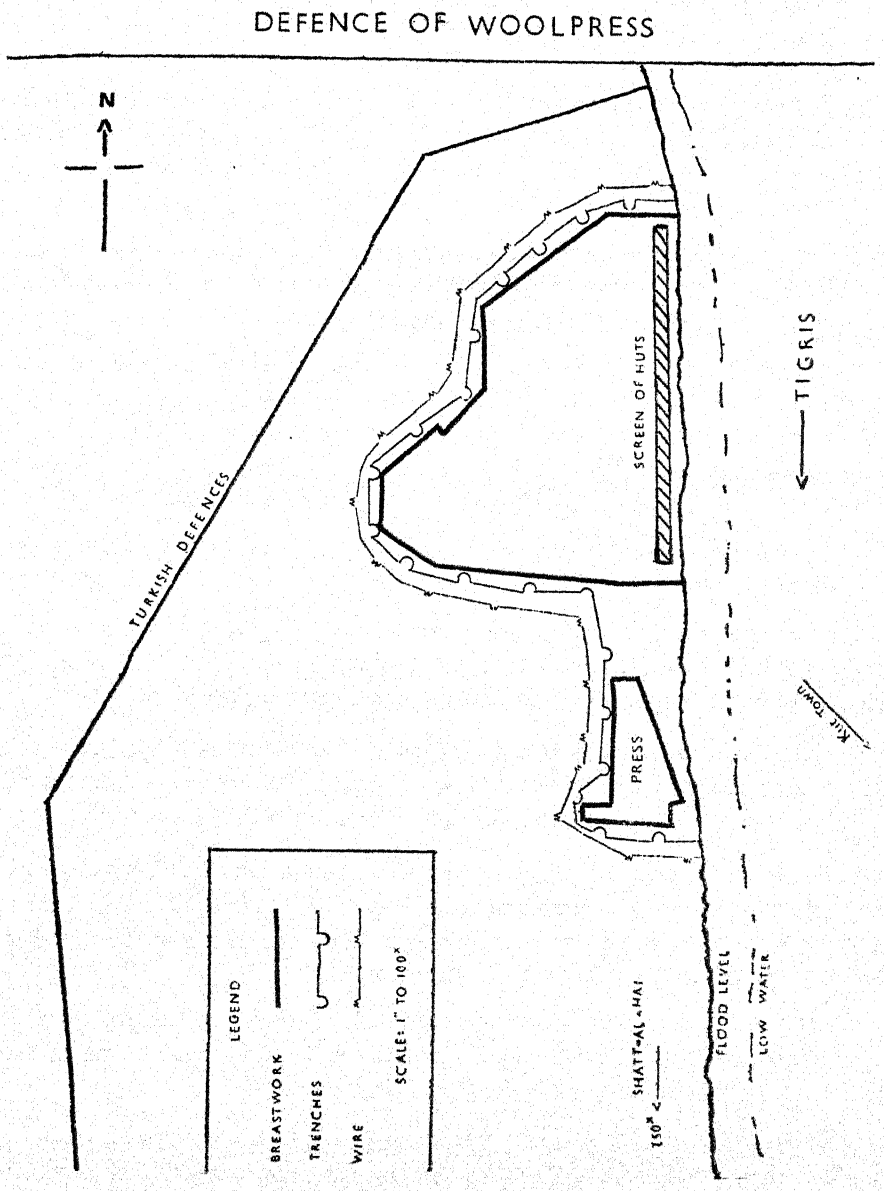
We were fortunate in having few superior officers visit us. The Brigade Commander, though half his brigade was in Woolpress, only came over for one night. He preferred the amenities of the town to the discomforts of the village. The only staff officer to come, arrived on 28th April to let us know that we were to surrender the next day.

At the end of the siege our condition was pitiable. The ADMS of the force, an officer of the IMS, gave an accurate account.

"During the last month, men at fatigue and trench digging, after ten minutes work had to rest a while and go at it again; men on sentry-go would drop down; those carrying loads would rest every hundered yards. There were instances of Indians returning from trench duty in the evening, seemingly with nothing the matter with them, who lay down and were found dead in the morning.

'There is vast amount of suffering from hunger among the troops which is borne with admirable patience and fortitude and arouses enthusiastic praise at the pluck and loyalty displayed by both British and Indian soldiers. As one who is amongst the men daily and speaks with intimate knowledge of these conditions the behaviour of the men in meeting these unfortunate conditions is heroic.'

Our troops in Woolpress were in no different state. Practically everyone had some form of stomach complaint. We had lost a lot of weight and most of us were skin and bone, but still tough skin and bone. Our medical officer in the last week of the seige, had been taking the pulses of the twenty toughest men. It was only thirty-eight.


DEFENCE OF WOOLPRESS
N
TURKISH DEFENCES
SCREEN OF HUTS
TIGRIS
PRESS
KUT TOWN
LEGEND
BREASTWORK
TRENCHES
WIRE
SCALE: 1" TO 100ˣ
150ˣ
SHATT-AL-HAI
FLOOD LEVEL
LOW WATER

Although the airforce with the Relieving force attempted to drop food into Kut, the smallness of their numbers and the arrival of a German Fokker of superior performance resulted in only two days rations at the starvation scale. There was no proper dropping gear and some of the supplies predictably landed in the river and the Turkish lines. Nevertheless it was the first recorded occasion that food had been obtained from the air since the time of Elijah and the ravens.

When the gallant attempt by the Royal Navy to run the blockade with supplies failed, starvation forced Townshend to surrender on 29th April, the day the last vestige of food was consumed.

At the start of the siege, Townshend's force consisted of approximately 525 British and Indian officers, 2,850 British troops, 8,200 Indian and 3,500 followers. The last number included non-combatants of the Artillery, Medical services and Supply and Transport, as well as the private servants of officers. Most of them would now be included as combatants.

The numbers on surrender were officers 480, British troops 2,600, Indian 6950 and followers 3,250.

After destroying or throwing into the Tigris all arms, ammunition and military gear, except for twenty rifles a company to deter looting Arabs, we sat on the bank waiting for the Turks to take over our position.

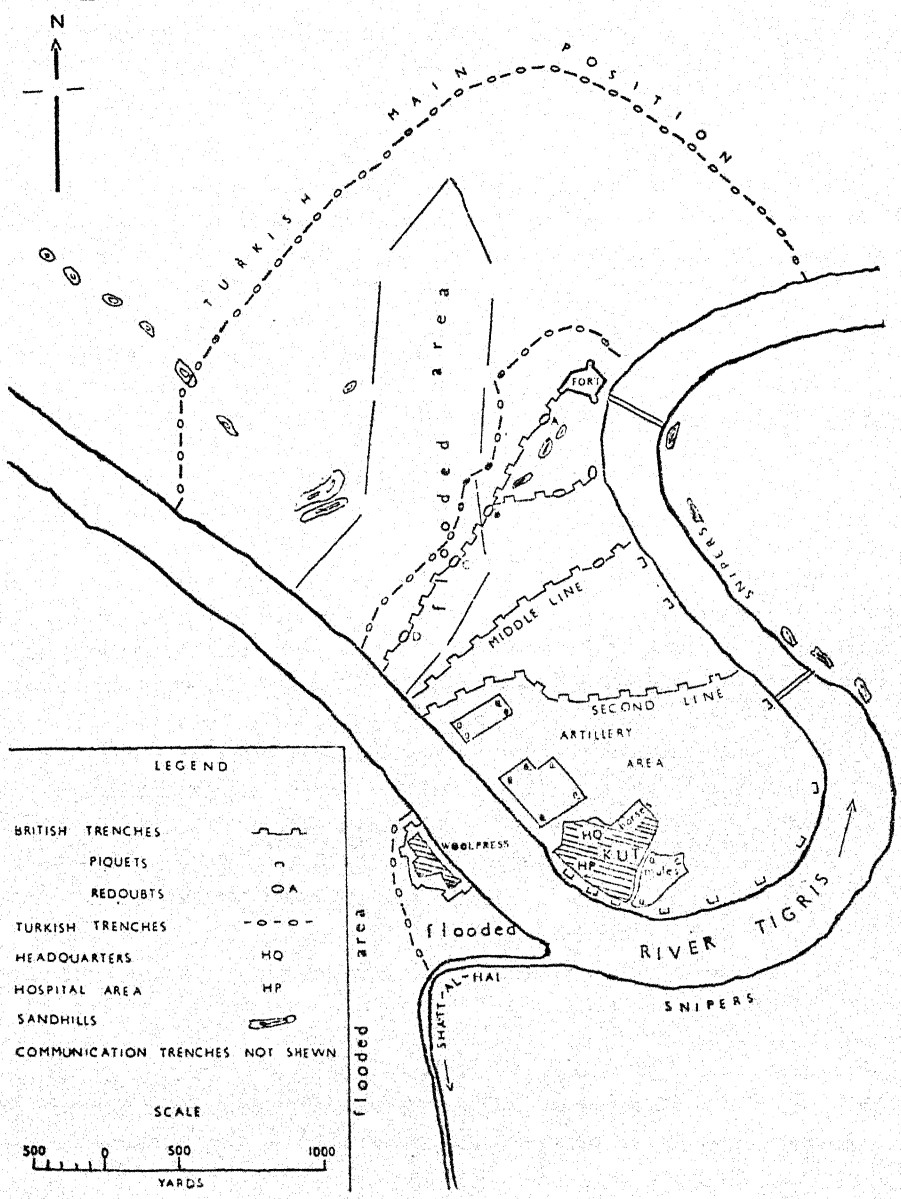
There was enough cash in the Regimental Treasure chest to give each officer a golden sovereign or two and every man a few rupees. These small amounts were to prove a Godsend in the days to come.

Woolpress was occupied by the Turkish battalion that had been confronting us. The officer in command, a major, had a smattering of French. His troops were extremely well behaved and there was none of the looting that took place on the other side of the river.

Towards evening a small river steamer took us to the concentration area at Shumran, a few miles upstream. We were lucky not to have to march the six exhausting miles that the bulk of the prisoners did.

When we reached Shumran, officers and men were segregated, in spite of efforts being made for officers to remain with their men. This was in accordance with the terms of the Hague Convention on prisoners of war. It was the last we saw of our trusted and respected comrades, as we went our respective ways to prison camps without meeting again.

There are no first hand accounts in Britain of the tribulations of the Indian troops during the death march into captivity, but it is possible to get occasional glimpses of what happened to them.


THE DEFENCE OF KUT
N
TURKISH MAIN POSITION
flooded area
FORT
SNIPERS
MIDDLE LINE
SECOND LINE
ARTILLERY AREA
WOOLPRESS
HQ
HP
KUT
flooded
RIVER TIGRIS
SHATT-AL-HAI
SNIPERS
flooded area
LEGEND
BRITISH TRENCHES
PIQUETS
REDOUBTS
TURKISH TRENCHES
HEADQUARTERS HQ
HOSPITAL AREA HP
SANDHILLS
COMMUNICATION TRENCHES NOT SHEWN
SCALE
500 0 500 1000
YARDS

Regimental Quarter-Master Sergeant Harvey of the Dorset Regiment, whose party consisted of both British and Indian troops, had this to say after the Indians were separated from the British—

'The Hindus who had been marching a day ahead of us had a worse time than we had. They were treated worse than us when we had all been together, kicked and knocked about far more than either British or Moslems; though God knows we were treated bad enough.

'One would have thought that the Moslem Kurds (the guards), as co-religionists, would have shown a trifle of feeling to their brother Indian Moslems in their religious observances, but it was not so. Many Indian Moslems I have seen kneeling towards Mecca at sunset, and on any member of the escort seeing them they would at once ride up and commence to flog them whilst still on their knees at their devotions and eventually forcing the poor devils to get up. Needless to say one never saw the Kurds at their devotions.'

Sergeant Long of the artillery gave this account—

'At Ras-al-Ain, the non-Moslem Indians from Kut were working on the railway. Their condition was truly pitiful. They resembled animated skeletons hung about with filthy rags. No tents or other shelter had been provided and they were living in holes in the ground like pariah dogs. To the fanatical Moslem Turks anything was too good for the giaours and these unfortunate Indians were being treated far worse than even an Arab treats his animals.

'Scores of them were too sick to move from their holes and I saw many who were obviously dying, yet I was told they received no medical attention whatsoever. Also I was told that anyone too sick to draw rations had to do without. The normal ration was so small that it scarcely sufficed to keep alive those who were working, yet they shared their rations with the result that all suffered together.'

As time went on and the stories of the condition in prison camps became known to the world, things did improve, but by then it was too late for many. On the whole the Indian soldiers stood up to the appalling conditions better than their British comrades of whom 70% died in captivity against the 27% of the Indians. Officer deaths made up the remaining 3%.

In the Crypt of St Paul's Cathedral, London, is a memorial to all the members of the Kut garrison. It reads

'Kut-el-Amara, 5th December 1915 to 29th April 1916.
To the memory of 5746 of the garrison who died in the siege or afterwards in captivity.
Erected by their surviving comrades.'

APPENDIX

Daily Indian rations in Kut.

	Full up to 21 Jan.	21 Feb.	21 Mar.	21-28 Apr.
Flour	1½ lbs	1½ lbs	10 oz	4 oz
Sugar	2 oz	2 oz	nil	nil
Ghi	2 oz	2 oz	nil	nil
Dhal	4 oz	2 oz	nil	nil
Meat (horse)	12 oz	12 oz	12 oz	9 oz
Parched barley	nil	nil	4 oz	nil

Troops in Kut.

Headquarters.	6th (Poona) Division.
	16th Infantry Brigade.
	17th Infantry Brigade.
	18th Infantry Brigade.
	30th Infantry Brigade.
	10th Field Artillery Brigade.
British. Royal Navy.	HMS *Sumana* and four 4.7 inch guns on barges.
Artillery	63rd, 76th and 82nd batteriees, Royal Field Artillery.
	Each of six 18-pounder guns.
	10th and 86th batteries, Royal Garrison Artillery.
	Four 5-inch and two 4-inch guns.
	Ist/5th Hampshire Battery, Territorial Force.
	Four 4.5-inch howitzers.
	Rangoon Volunteer Battery, Indian Defence Force.
	Four 15-pounder guns.
	6th Ammunition Column.
Infantry.	2nd Norfolk Regiment.
	2nd Dorset Regiment.
	Ist Oxfordshire and Buckinghamshire Light Infantry.
	2nd Royal West Kent Regiment. (Half battalion)
	1st/4th Hampshire Regiment, Territorial Force.
	(One company) Royal Flying Corps. Detachment.
Medical	British General Hospital.
	Indian General Hospital.
	2nd and 4th Combined Field Ambulances.

Indian. Cavalry.	One spuadron, 23rd Cavalry, F.F.	
Engineers.	17th and 22nd Companies, 3rd Sappers and Miners. Bridging Train, 1st Sappers and Miners. Sirmoor Company, Sappers and Miners, Imperial State Forces.	
Singals.	34th Divisional Signal Company.	
Infantry.	Divisional troops. 48th Pioneers.	
	16th Brigade.	66th Punjabis. 104th Wellesley's Rifles. 117th Mahrattas.
	17th Brigade	22nd Punjabis. 103rd Mahratta Light Infantry. 119th Infantry.
	18th Brigade.	7th Rajputs. 110th Mahratta Light Infantry. 120th Rajputana Infantary,
	30th Brigade.	24th Punjabis. 67th Punjabis. 76th Punjabis. 2nd/7th Gurkha Rifles.
Supply and Transport.	Supply detachment. 21st and 30th Mule Companies.	
Veterinary	Detachment.	

THE FIRST BATTLE OF PANIPAT

GROUP CAPTAIN N N DHIR, VSM

EVER since the mythical great war of Mahabharata at Kuruksetra, the fate of India has often been decided in the Haryana plains immediatly to the west of the Yamuna. Indeed, through the centuries, this plain has been the highway to Hindustan, the gateway to India. Three of the most decisive battles for India were fought at Panipat in this plain. The first battle of Panipat was truly a turning point in the political history of our country. The high ground in the vicinity of Panipat town is of great tactical importance since it dominates the flat land all around it and lies astride the road to Delhi. As a result of the first battle in 1526, Babur laid the foundation of the Mughal Empire, but the base of this new empire was as yet shaky and unstable. Barely thirteen years later, Sher Shah Suri re-established Afghan hegemony by inflicting on Humayun, Babur's son and successor, a decisive defeat at Chausa, near Buxar. After an interrugnum of seventeen years, and thirty years after Babur's victory, the second battle of Panipat "brought to a close the Afghan-Mughal contest for supremacy" in favour of the Mughals when Hemu's army was routed by Akbar's force under the leadership of Bairam Khan. Two hundered and five years later still, the third and final battle of Panipat demonstrated the final decline of the Mughal Empire and accelerated its dismemberment. This battle also checked the growth of the Maratha dominion, thereby creating a power vacum which was filled by the extension of British authority, by stages, over the whole country.

In 1526, Babur invaded India at the head of a small army of 12,000 men. His first encounter was with Daulat Khan, the treacherous Lodhi Governor of Lahore, whom he defeated with the greatest ease. The battle for the conquest of Hindustan was fought with the Delhi Sultan, Ibrahim Lodhi at the historic plain of Panipat. The Afghan troops were many times the strength of Babur's force and fought with conspicuous valour. They were, however, decisively defeated by the invaders. Babur's success was due to his superior generalship, his pioneering use of artillery and his adherence to the standard combat procedure of the Mongols.

Babur claimed descent on his mother's side from Chengiz Khan, while on his father,s side, he was sixth in the line from Timur. The word 'Mughal' is a corrupt form of 'Mongol'. Even though Babur's language and ancestry were Turki, the military traditions he followed were distinctly those

of his earlier Mongol forebears. Chengiz Khan was one of the great generals of history, a military genius of the thirteen the century whose armies strode across the larger part of the Eurasian continent. To quote Liddel Hart "In scale and in quality, in surprise and in mobility, in strategic and in tactical indirect approach, (Chengiz Khan's) compaigns rival or surpass any in history." It was India's good fortune that he never crossed the Indus, even though he skirted the great river in 1221. In 1398, however, Timur descended on India with a large army, using the same Mongol strategy and tactics, plundering and butchering all the way to Delhi where his army went completely berserk and "thought of nothing but killing, plundering and making prisoners".

It would be interesting and rewarding to examine the Mongol art of warfare and the reasons why Indian forces were unable to hold their own against Babur's invading troops.

The Mongol army was the product of a rather small, nomadic and barbarian society. This society was divided into clans and tribes and its structure was patriarchal. The Mongol plateau stretches from Lake Baikal to China. It is a land of extreme climate with pine forests in the north and dry steppes in the south. The total population of the Mongols in Chengiz Khan's time could hardly have exceeded seven lakhs. They were, however, hardy people whose phenomenal endurance was built in the constant and grim struggle for survival they had to wage against an inhospitable environment. The Mongols were natural horse breeders and grew up into excellent horsemen from childhood. Soldiers born and brought up in the steppes were a sober lot, governed by rigid discipline and moved by neither fear nor pity. Their military hierarchy, their basic armament and their standard tactics were marked by stark simplicity and a high degree of effectiveness. The Mongols had incomparable skill as archers, both on foot as well as on horseback. Constant feuding among the tribes and clans further developed their warlike qualities.

Contrary to popular belief, Chengiz Khan and his Mongol hordes did not belong to any of the great religions. Conversion to Buddhism or Islam came considerably later. The Mongols of the medieval age had a taste for adventure and enterprise. By nature, they were docile, content with little and always ready to move on. On the negative side, they were pitiless, apethetic and violent, having in a large measure the artless cruelty of the barbarian. Their loyalty and devotion to their leaders was unconditioned and absolute.

The Mongol army, with cavalry as its dominant arm, was recruited

according to their social and political units. The smallest unit, the *yurt* furnished to the leader one or more horsemen and/or horses, the clan one or more squadrons, and the tribe a division of several squadrons. Their uniform comprised a fur-lined cloak and boots. The armour consisted of a breastplate of lacquered leather and a shield. The armament for each horseman was two bows and two quivers. The standard bow they used was the powerful double curved, horn-strengthened Turkish bow which had a range of one to two furlongs. Besides, a Mongol horseman carried a javelin, a short barbed lance and a lariat or lasso. The Mongol horse was small, stocky, thick-necked and thick-coated. Though not a handsome animal, it was sure-footed and had a great deal of endurance. Herds of mares followed the army and foaled in open country. Fresh mounts were thus furnished to replace horses lost in battle or dead through natural causes. As a rule, a horseman carried his own thrifty rations, supplementing these by whatever he could catch or steal.

The Mongols had no consciously developed doctrine or principles of warfare. They employed the usual stock in trade of medieval armies—intelligence, ruse, deceipt and spying. They made meticulous preparations for their military operations, leaving little or nothing to improvisation. Their special characteristic was exploitation of terror whereby they sought to break the morale of the enemy. Since they were mainly a cavalry force, their speed afforded them extreme mobility, specially in comparison to the cumbersome and sluggish elephant-led Indian armies. The initiative, therefore, was generally theirs. Their strategy aimed at affording the flanks freedom of manoeuvre. Their battle formation modified by Timur, was "scientific, clear-cut and effective". A curtain of cavalry scouted out ahead of the main army. Mounted archers harassed the enemy force while the decisive blows were dealt in silence by the heavy cavalry. Babur had the added advantage of the systematic use of artillery which worked havoc at both Panipat and Khanua.

We may now examine in some detail Babur's strategy and tactics at Panipat, one of the most decisive battles in Indian history, which led to the establishment of the great Mughal empire.

Babur took up a defensive position. On his extreme right were the town and suburbs of Panipat. His centre was protected by his artillery, the guns being placed on movable carts (araba), which were joined to each other by chains and twisted bull hides. Between every pair of guns there were six or seven breastworks (tura) for the protection of matchlockmen. In the centre (Qul or ghoul) was Babur himself. His left was protected by ditches and branches of trees, a good protective device which could

prove a veritable trap for the enemy should he try to force his way through it. On the extreme right and left of the extended line were strong flanking parties (tulughma), ready at a moment's notice to wheel round and take the enemy in the flank or rear. Right in front were the scouts (qarawal), followed by the vanguard (haraval), with a small reserve. Babar's wide experience of warfare led him to decide on driving the much larger enemy force into a huddled mass upon which his artillery commanders, Ustad Ali and Mustafa could direct their cannonade. On 12 Apr, Babur was ready to meet the expected attack of the Imperial army. For eight days nothing happened except for small probing parties causing minor skirmishes. On 19 Apr, Babur became impatient and sent out a small force of about four thousand men under Mahdi Khwaja to make a night attack which, though badly conducted, had the desired effect of provoking Ibrahim into action. On 21 Apr 1526 at daybreak, the Delhi army was seen to approach. This imperial army had 100,000 men and nearly 1,000 elephants. Babur's Turki-Mughal army was drawn up, as described above, in the traditional Mongol formation. The main Right wing was under the command of Prince Humayun, the main left under Mahdi Khwaja. The Vanguard was led by Khusru Kukoltash and Muhammad Ali Jang-Jang. Ustad Ali with the heavy field artillery was posted on the right of the Centre while Ustad Mustafa with the lighter pieces was on the left of the Centre. Babur himself commanded the Centre.

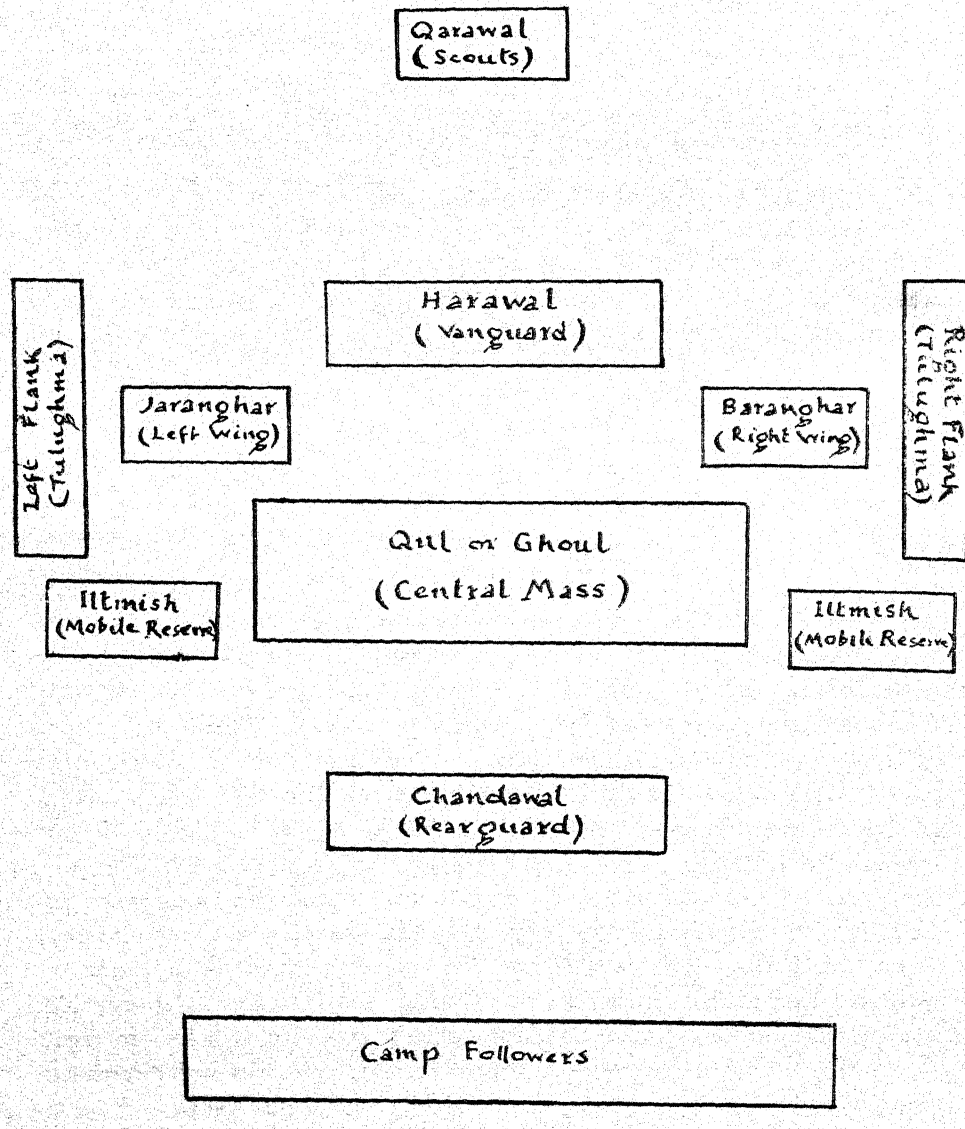
It appeared that the main attack was to be made on Babur's Right. The initial advance of Ibrahim's troops was "like lightning" but their speed slackened as they approached Babur's defences. As the Afghans pressed on, they found themselves attacking too small a front and could not decide what to do. Babur immediately took advantage of this pause to use the classic Mongol manoeuvre, *tuluqhma*. and his flanking parties wheeled round and attacked the enemy in the rear. In the meanwhile, Babur's Left Wing had been faring badly at the hands of the Delhi troops but strong support was despatched from the Centre and the Mughals were able to repel the attackers. At this juncture, Babur ordered his gunners to open fire and the Imperial army which had been on the offensive found themselves exposed to deadly bursts of arrows on either flank and a hail of shots and bullets in front. The battle lasted till noon and was hotly contested but Babur's superior strategy enabled him to create utter confusion among the vastly more numerous Afghan troops. The Delhi force finally took to flight, leaving over 15,000 dead on the battlefield. Sultan Ibrahim himself and Raja Bikramajit Singh of Gwalior perished among others. In the long roll of the Sultan of Delhi, Ibrahim Lodi was the only one who died fighting on the field of battle.

Babur employed similar tactics in the following year against Rajput forces under Rana Sanga at the battle of Khanua except that he made even more effective use of his mobile artillery. Actually, Babur's musketeers and gunners created more consternation than actual destruction. In his Autobiography, Babur gives a graphic description of both battles making special mention of his master gunner, Ustad Ali Quli.

What were the causes of the repeated defeat of Indians, whether Hindus or Muslims, at the hands of the invaders from the north-west ? These were many in number, ranging over the geographical, military, political and social fields. Northern India, which is virtually a synonym for the Indo-Gangetic plain, is a vast fertile tract of land possessing few natural defences. The rivers are easily fordable except in the rainy season. There are no other obstructions. Except for comparatively brief periods in Indian history, there was no central authority in the country. The many warring kingdoms decayed due to internal reasons and the political picture, in totality, was one of confusion. The passes in the north-west were mostly unguarded and, in successive waves, came the Greeks, the Huns, the Turks, the Mughals and the Persians. There was little sense of nationality and many times internal discard and jealousy prompted the frontier states to invite the prospective invaders in the hope that after the defeat of the principal adversaries, the conqueror would go back, even though with a large booty.

Militarily, the main weakness lay in the composition and organisation of the Indian armies. There was excessive reliance on elephants. The cavalry which provided mobility to the forces was almost always weak. The quality of Indian horses was poor. The method of recruitment was feudal and this militated strongly against unity of command and control. There was almost no standardisation of equipment. Nor was there any sense of commitment to a national cause. Armies in the field were conglomerates under diverse *umras* and *rajas* whose forces owed loyalty to them only. It was quite common for these forces to transfer allegiance on the eve of a battle or during its course. Indian commanders lacked vision and had little strategical and tactical sense. There was no doctrine of warfare in India nor any philosophy of war. Indian armies were massive in size and often this was a source of weakness rather than strength. They moved slowly and ponderously and were an easy prey to the hardy invaders from the north-west whose movement was swift, aim sure and methods ruthless. Babur's army was well-disciplined and thoroughly trained, and veterans of many a victorious battle. Ibrahim was completely out-generalled by Babur who skilfully employed his superior cavalry and weapons against the sheer mass of the Afghan army. Babur gained tactical surprise by the use of his artillery and small firearms. Babur force had much greater mobility and manoeuvrability. The morale of Babur's

Standard Timurid Battle Order



force, fortified by their earlier victories was undoubtedly higher. In Babur, the Mughals had a leader of "indomitable spirit", capable of infusing in dismayed soldiers "fresh courage and enthusiasm". The Mughals had a far more efficient system of intelligence and Babur was kept well-informed of each and every movement of his adversary.

Internal Indian wars were petty affairs, with practically no popular participation. The caste system also made the profession of arms an ancestral preserve. There was a tradition of personal bravery from Rama to Rana Sanga entailing a disregard for own life, but almost no tradition of generalship. There was no mass training for the levies. Nor did the Indians learn any lessons from successive defeats. At the battle of Khanua, Rana Sanga had assembled a huge force of seventy thousand horsemen and one lakh and forty thousand infantry, arrayed unscientifically in four groups of right and left, forward and rear, whereas Babur's small force was arranged in the far more effective and oft-tested Timurid order of battle.

Socially also, the caste system deterred the masses from taking to the profession of arms. The fertile northern plain, not yet burdened with a large population, required little effort to produce a rich harvest. Living was easy and this led to a general softening of the moral fibre. Hinduism acted as a divisive force while, at least in the earlier stages, Islam infused a crusading spirit in the invaders. With the progressive Indianisation of earlier Muslim invaders, they too lost this advantage and, in turn, were easily overcome by the hardy troops of the later invaders.

Does this brief survey hold any lessons in the context of today's national and international scene ? In 1971, we won a war against Pakistan and some of the euphoria still seems to persist. While our generals, admirals and air marshals deserve all praise for the masterly conduct of war and we must always harbour a deep sense of gratitude to the martyrs who made this victory possible, we must not forget that this war was fought in very special circumstances. We had all the advantage while the enemy's position could hardly have been worse. We must not develop a sense of complacency. Our services need to keep abreast ot the latest developments in the art and science of war and, for this purpose, our staff colleges must evolve original concepts suited to our own special needs. There must be constant improvement in our training techniques and programmes of re-equipment should not be thwarted by paucity of funds. The quality, calibre and moral fibre of our officers as well as other ranks must be constantly improved. We are still tied to British doctrines of World War II vintage and training methods which have been discarded elsewhere. We should be prepared to learn from any source. Above all, we must learn to anticipate future developments, and prepare for them adequately. Our long history of relying on mere numbers and thereby courting disaster must never be repeated.

TAIL TALKS TO TEETH

BRIGADIER S N MANOHAR

INTRODUCTION

The Indian Army has been in the process of continuous reorganisation, to meet the changing politico-economic conditions of our country as well as that of our neighbours. An attempt to breakaway from the concepts of World War II has been made, and inherent in these changes, is the desire to stop aping the Western armies and evolve organisations to suit our own tactical needs. Yet, whenever, the teeth tail ratio is discussed, unconsciously, the thoughts seem to go back to the Western armies for a solution. It is not uncommon to hear of the type of a logistic support prevailing there being quoted in support of our arguments, decisions and actions. As a result, the logistic services are being pruned without prudence. It must be realised that the conditions prevaling in the west, which is affluent, are quite different to the ones obtaining in ours. Such comparisons and deductions are fraught with danger and if not corrected in time, may lead to a complete logistic failure. The aim of this paper is to examine how far the present concept of teeth tail is valid and how resources for the teeth can be found without seriously affecting the capability of the tail.

ECONOMIC CONSTRAINTS

THE government has imposed a ceiling on the size of the army and any reorganisation necessary, has to be made within this constraint. Thus, any effort to grow more teeth has to be at the cost of the administrative units.

It is for consideration as to what is the real intention of the government in laying down this ceiling. Is it that the strength of 8.3 lakhs is sacrosanct or is it the cost of maintaining an army of this size, the determining factor, or is it both? Would the government accept a situation wherein the teeth tail ratio is improved within the manpower ceiling but with increased budgetory expenditure ? In all probability, given the choice between the two evils, the government may not be averse to raise the ceiling on manpower, within the budgetory expenditure. Given this mandate, it would be desirable to examine the economics of reducing the tail.

COST STRUCTURE OF MAN AND MATERIAL

It has also been said that in the present day design of an equipment, it is economical to replace defective components rather than repair them. These are all concepts borrowed from the affluent countries where there is mass production and the labour costs are twice as much as the material costs. In

our country, the cost structure is just the reverse and even in the present day repair system, the value of spare parts replaced in a 'B' vehicle in its life time, is about 5 to 6 times the direct cost of repair effort. Further our industries are not yet in a position to supply the spares required in range and depth, with the result that replacements are difficult. A typical example of this situation can be found in the maintenance of electronic equipment. The modules that go into it, are supposed to be replaced whenever they become defective. Nonavailability of these has made a significant number of equipment non-effective and repairs are being carried out. Reductions in technical manpower would mean nonavailabilty of manpower for repairs and the workshops will be compelled to resort to more and more to replacements of defective components, if the existing level of equipment availability is to be maintained. This leads to a peculiar situation where an equipment cannot be made serviceable due to lack of replaceable components nor can it be repaired, due to shortage of manpower. Obviously, such a proposal in the present day context is unworkable.

SHARING OF LOGISTIC FUNCTIONS BY ARMS

Proposals have been put forward that the arms should take over some of the logistic responsibility such as collecting supplies and POL through trade, or taking over some repair responsibilities in addition to their normal functioning. It needs no specialised knowledge to know that a person can do only one job at a time efficiently. If soldiering is a whole time job, then a soldier cannot assist in meeting the logistic needs of his unit, and there will be a need for extra bodies in the unit to do this job. For example, till a few years ago LRWs were separate EME units with its own WE. Now they are merged with the parent units with attached EME personnel. If the repair responsibility is given to the user, then the EME personnel will have to be either absorbed by the parent units or additional manpower has to be given, if the EME personnel are withdrawn. In effect, it means that a proportion of the logistic service personnel would change their shoulder titles and wear that of the teeth arm. Does this change improve the teeth-tail ratio? Cutting the tail and putting it in the mouth does not add to the teeth.

Further this proposal implies that to execute repairs, spares have to be held by the units. This in turn results in dispersion of the meagre stocks and escalation of inventory holdings. The cost of training must also be considered. It is certainly more expensive to train all the drivers/operators of weapons/equipment into half baked technicians, in comparison to training a few specialists. Thus, the whole proposal is not cost effective.

Coupled with the above propopsal is a desire to amalgamate repair units

into a single largestatic one. Purely from a technical angle, this is very sound proposition but, is debatable from tactical point of view. It will not be incorrect to assume that administrative installations would be priority targets for enemy aircraft. There will always be about 80 to 100 vehicles under repair at any one time in such a large workshop and would always attract enemy attention. Destruction of this crowded unit would seriously jeopardise the effectiveness of the formation. Again during operations, this type of unit cannot move out even a kilometer from the KLP to avoid enemy interference because of the static nature of the equipment held by it. Hence, it is for consideration whether a risk of this nature is desirable.

CONCEPT OF TEETH TAIL RATIO

The sophistication of modern weaponry has shifted the emphasis from 'man behind the gun' to the 'man and the gun'. Hence in physical terms, the ratio of the "man", and the persons required to keep the "gun" firing, has to decrease in this changed context. But the significant fact to note in the present day weaponry is, that, it is atleast twice as effective in terms of destructive capability. For example, the Sherman tank had a crew of 4 with a 75 MM gun having a range of 1500 metres. Essentially three types of tradesman, ie, AFV mechanic, electrician and a gun fitter were required to keep it on road. The Vijayanta on the other hand has the same crew, but needs one more category of tradesmen to keep it in a fit for war state, ie, gun control equipment mechanic. Hence, apparently the tail has increased, but the performance of this tank and punch of the gun is far superior to that of Sherman. Logically, therefore, the teeth tail ratio must be viewed from the fire power available to the teeth, vis-a-vis, the tail required to maintain this volume of fire. An improved man ratio is inevitable in the modern weapon and equipment. In fact, the sophistication of the weapon system has obliterated the distinction of teeth and tail and it would be more appropriate to rename it as "teeth and gum". The teeth are as sharp and strong as the gums keep them.

It is not the intention to propagate that the tail cannot be cut, but is to highlight, that reductions must be made keeping in view the cost effectiveness of such decisions. The search for resources for raising more teeth arm should be made in the whole army and not be confined to the logistic services only. Keeping this in view a few suggestions are given below.

SUGGESTIONS FOR RAISING TEETH ARM UNITS

TRAINING CENTRES.

(a) *Military Training.* The basic military training is same for all recruits, irrespective of the arm/service they belong to. On an average about

50,000 other ranks retire each year and a similar number are recruited yearly. This training is carried out in various centres of arm/services, which are operating below capacity, resulting in greater over head costs and under utilisation of resources. It would be far more economical to train the entire yearly intake in a few selected centres at optimum capacity and disband the rest so as to release the manpower and resources for new raisings.

(b) *Trade/Technical Training.* On completion of basic military training, specialised trade training is imparted at the centres. There are quite a number of trades which are common to arms/services such as clerks, drivers, carpenters, painters, store keepers etc, whose training can also be centralised at any one centre. Only those trades which are peculiar to each arm/service should be taught in the respective establishments. Similarly NH and HJ courses can also be centralised. Such measures not only bring uniformity in training but also the cost of training is considerably reduced. In addition, there will be savings in men and equipment.

Infantry. The fire-power inherent in a battalion as well as that available in support, has greatly increased since World War II, yet the manpower (bayonet strength) has remained constant. As the concept is to hold ground by fire and each section now (in plains) has two LMGs and each rifleman has a semi-automatic rifle, there is perhaps scope for reduction of one rifleman per section. It must not be forgotten that the capability to inflict casualty is not directly proportional to the increase in fire-power and after a certain limit, there is a diminishing return. This reduction alone gives a large savings.

Other Arms. Formations in holding role need have only restricted mobility. It appears incongruous that engineer and signal units of such formations continue to have large number of transport. Again there is hardly any difference in authorisation of vehicles and men for a Communication Zone Signal Regiment and a divisional signal regiment, though the former is static. Similar lacuna can be seen in the Engineer Units as well. Further, in formations having similar role and located adjacent to each other, the Signals and the Engineers support could be organised on a zonal basis, instead of formation basis. These measures also, would yield significant savings.

Services. Each Corps should be allotted the task of finding the manpower for new raising (within certain limits) from its own resouces. As a corollary it implies that there is an automatic reduction in the tail which may be more palatable than the imposed cuts. Also the present system of arbitrary cuts must be given up, as it has created an imbalance in trade and organisational structure. Thus the respective Corps Directors would have a greater freedom to re-organise their units, and the chances of boosting up

the requirements would be eliminated as they have to find the means to meet their demands.

CONCLUSION

For a strong and efficient army, either it should have greater numbers of teeth to bite off the enemy or alternatively, keep the numbers constant and increase their sharpness. Modern weaponry has given a greater incisiveness to the teeth, thus increasing their fighting potential. The teeth and the tail, therefore, must be viewed in this changed context. Pruning the tail has latent financial repercussions and unless its cost effectiveness is predetermined, may defeat the very purpose of reduction. Repair is less expensive than replacement and all proposals resulting in, increases in budgetory expenditure should be rejected. The need for further strengthening the arms has always been accepted, but the search for resources must be made in the entire organisation and not be confined to a few segments of it. If we are able to overcome the inhibitions of outmoded traditions and accept the changed conditions, such a search will be extremely remunerative.

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AIR DEFENCE OF MOBILE FORMATIONS

BRIGADIER JR MALHOTRA

"We should provide in peace what we need in War — Publilius Syrus".

INTRODUCTION

THE necessity for providing defence against low flying aircraft to the army in the field, particularly to mobile columns, has been felt from the time aircraft were brought into military use in World War I. Various passive and active measures were adopted. In the period between the two World Wars guns with calibres ranging from 20 to 40 mm were developed and introduced into service. To give them added mobility for employment with armour guns were made self propelled by mounting them on wheeled vehicles. Thus, World War II could be taken as the real starting point of modern thinking on mobile air defence by land based gun systems.

During this period it was also felt that the rates of fire of air defence guns were not adequate enough to produce the volume of fire required to achieve a high percentage of kill. The state of art of this period did not allow any perceptible increase in the rate of fire of guns and consequently efforts were made to produce some guns as twin, triple and even quadruple mountings.

Towards the closing phases of World War II, the jet aircraft made an effective debut. The rapid development of various types of jet engines and great advancement in avionics and aircraft design lead to the introduction in the 60s of fighter bomber aircraft which could fly at a speed of about Mach one at altitudes as low as 30 metres. The introduction of these high speed low flying aircraft demanded air defence guns which were not only more accurate but had higher rates of fire. The philosphy of employment of armoured and mechanised units in numbers larger than hitherto thought of necessitated making these guns highly mobile.

In the early 60s it was also felt that the low level surface to air guided weapons would provide a better answer to the future needs of air defence than the guns which had reached optimum in design. Consequently many advanced countries took up projects for developing guided weapon systems.

At present a variety of multi-barrelled radar controlled guns on tank chasis and mobile low level air defence guided weapon systems are available in the World. An evaluation of these is essential to determine as to which of these two weapon systems provides a cost effective solution to the present and future requirements of air defence of armoured and mechanised formations.

THREAT

The threat at present, and in the near future, is from high speed low flying aircraft of the Mirage, F5, F14, F15. and MIG 23/25 class. These aircraft not only carry sophisticated avionics but also advanced weapon systems.

A modern fighter bomber aircraft is capable of flying at a speed of about 300 metres per second at an altitude of about 30 metres. At this low altitude even the sophisticated low looking mobile surveillance radars can only detect these aircraft at a distance of about 18 km. In terms of time this represents a flying time of about 60 seconds. Within this limited time the aircraft after detection has to be positively identified, allocated to a firing unit and engaged before it can release its weapons, and in any case at the maximum range of the air defence weapon system. For example, to achieve an impact at 6 to 8 km by a missile, it has to be fired when the target aircraft is at about 12/14 km. With a reaction time of 10 seconds for detection, identification, and allocation of target, the attacking aircraft must be first detected at a range of about 15/17 km. In the case of a gun with an impact range of about 4 km, fire has to be opened at approximately 6 km for which the target must be detected at about 9 km.

Apart from conventional weapons like cannons, rockets, napalm and free falling bombs, there is now an increasing employment of stand-off weapons like AS30, Bulldog, Shrike, Phoenix, Maverik and Walleye. While with conventional weapons the attacking aircraft have to come in very close to their target, with stand-off weapons the aircraft can release their weapons a long distance away from the target. Depending on the type, the stand off-weapon would either be guided by the aircraft pilot or automatically guide itself after the intitial lock-on the target by the pilot. After launching its weapon the attacking aircraft would turn round and get away from the target area.

To achieve neutralisation of the target at a high pilot survivability rate, the attacking aircraft would endeavour to saturate the ground based air defences. Attack tactics would, however, be dictated by the type of target. While an area target may allow the employment of saturation attack patterns, smaller targets would demand precision approach by single aircraft at a time. While attacking armoured or mechanised formations it is likely that the

attacking aircraft employ either napalm or rockets or stand-off weapons. With nepalm attacks the defender could expect about four aircraft coming in together in a tight formation. The first wave of four aircraft could be followed up by two or three more such waves at fairly close interval. However, when employing rockets or stand-off weapons, each aircraft has to select and aim at individual targets and consequently close formation flying as discussed above would not be possible. The attacking aircraft may come in single or in pairs from multiple directions very closely spaced out in time. Attacks by two or three waves of four aircraft each should be quite normal. The attacking aircraft are likely to make only one pass at a well defended target.

REQUIREMENTS OF MODERN AIR DEFENCE WEAPON SYSTEMS

The essential requirements, that any modern air defence weapons system has to meet to be effective against the air threat analysed in the preceding paragraphs, are discussed below :—

(a) A large coverage envelope, in both the horizantal and vertical planes. The coverage envelope must confer the ability on a system to engage all types of attacking aircraft flying at low level and carrying different types of weapons including stand-off types. This requirement entails long range from almost ground level to a fairly high altitude, with minimum dead zone.

(b) Reaction time, ie, time between initial detection of a target and opening of fire. This should be as little as possible, say 6 to 10 seconds and entails the following :—

(i) A fully integrated system with its own surveillance and tracking radars with very low altitude search and tracking capability, supplemented by a visual tracing system.

(ii) A high speed computer for assessment of threat, allocation of targets and computation of firing data.

(iii) Minimum essential manual intervention.

(iv) Capability of operating for long periods at a high state of readiness.

(v) Fast and simple switching on and test procedures.

(c) A very high single shot kill probability throughout the coverage envelope. This requirement entails :—

(i) A very high speed missile/shell so as to reduce time of flight.

(ii) A guided missile to overcome errors inherent in all gun systems.

(iii) A reasonable size of missile war head and high explosive

contents, with an effective splinter distribution pattern; in the case of guns a high density of fire at the predicted point of burst. With the present state of art, desirable high densities can only be acheived by multiple mountings of high rate of fire guns.

(iv) A proximity fuze.

(d) Multiple target handling capability. This entails either repeat engagment of the same target if the first engagment has been unsuccessful, or of engaging another target within the same wave of attack after acheiving success in the first engagement. To achieve this the weapon system needs to have :—

(i) A multiple missile launcher in the case of missiles system.

(ii) Automatic reloading facilitites.

(iii) A camputer (Sub Para b(ii) above) for determining target engagement possibilities and simultaneous and continous computation of firing data for engaging subsequent targets as per the assessed priorities.

(iv) Long range and minimum dead zone.

(e) Very high mobility. This should be commensurate with the armour or mechanised columns being provided protections. Consequently the weapon systems must be mounted on tracked chasis. To make the weapon systems effective in mobile operations, these should have the capability of surveillance and fire on the move.

(f) Simplicity. This seems a contradiction when viewed in the light of the requirements discussed in the preceeding paragraphs which demand a highly sophisticated weapon system. Simplicity is required in respect of operating and maintenance drills, and manning and logistical support.

(g) Reliability. All modern sophisticated weapon systems demand a very high reliability status. The "down time" for such expensive and essential equipment must be minimum. The present state of art allows this to be achieved both in component/system and operating reliabilities, albeit at cost.

(h) Integration into the air defence environment. Effective air defence entails employment of a variety of ground based and air borne weapon systems. All these systems must be fully integrated into a country's air defence environment for achieving optimum afficiency in providing air defence to all critical areas.

ANALYSES OF ESSENTIAL REQUIREMENTS

A study of the essential requirements, discussed above, indicates that while both the modern air defence gun and low level surface to air guided weapon systems generally meet these requirements, the degree of satisfaction achieved varies between the two types of weapons. This is especially so in respect of coverage envelope, single shot kill probability and multiple target handling capability. A brief analyses of these requirements, therefore, would not be out of place.

The coverage envelope of a system is directly related to its maximum and minimum ranges. While the second generation low level missiles have a maximum range of 6 to 8km. the modern air defence guns of 20 to 40 mm calibre can only acheive an effective range of approximately 3 kms. A comparison of the minimum ranges of the two types of system shows that while a gun has a dead zone of about 300 metres, a missiles dead zone may be of the order of about 500 meetrs. Also while the minimum altitude coverage of the two types of weapons is about the same, the missiles would have better high altitude because of a longer range capability. Consequently a missile system would have a much larger coverage envelope as compared to gun. The size of coverage envelope leads to determination of the number of firing units required to a critical area. Thus when compared with guns, a very much smaller number of missile firing units would have to be deployed for air defence of a specified area. A simple graphic representation of the critical area with missile and gun coverages superimposed on it, would prove this point.

Maximum range is one of the major factors which affects multiple target handling capability. The longer the range, all other factors remaining constant, the more the chances of either re-engaging the same target or engaging another target in the same raid before they have released their weapons. Consequently the multiple target handling capability of a missile system would be perceptibly very much higher than that of a gun.

All gun systems have inherent bias, prediction and ballistic errors. This group of three errors affect the ability of a gun system to hit an aircraft. Bias errors are introduced by rate errors of operator tracking, hunting and lag in gun servos and data transmission systems, and alignment errors within the equipment. Prediction errors are based on the fact that once a shell leaves the muzzle of gun its trajectory cannot be altered to take into account even minor changes in target flight pattern in terms of its course and speed. Ballistic dispersion errors are the result of variations in air temperature, barometric pressure, wind speed and direction, vibrations of the mounting and round to round variations in muzzle velocity. However accurate the aim,

ballistic dispersion errors cause the shots to form a spreading pattern, the size of which increases with range. To achieve maximum probability of a hit, the centre of burst pattern should be maintained on the target. However, bias errors tend to displace the centre of burst away from the point of aim, and this effect also increases with range. The errors caused by prediction are disastrously increased if the target is manoeuvring. Bias and ballistic errors are disastrously increased if target range exceeds 1.5 km. Thus a gun system has only a very small chance of obtaining a hit beyond 1.5 km. range.

From the known effects of group of errors it is quite clear that while a gun system would have a very high kill probability near its minimum range, it would drop steeply as the range increases, reaching a barely acceptable value at a range of approximately 1.5 km. Beyond this range the kill probability would be very low indeed.

Low level surface to air guided missiles do not suffer from these errors. However till the guided missile is fully under control of the guidance and control system, its kill probability is low. Once full control has been achieved at the end of missile dead zone, the kill probability rises steeply reaching the designed maximum at about 1.5 km and thereafter remaining constant till the maximum range of the missile.

COSTS

From the foregoing analysis it is clear that mobile low level surface to air guided weapon systems are better suited than the modern multiple barrell mobile air defence guns for providing effective air defence to armoured and mechanised formations. It is however essential to make a cost comparison to determine the true cost effectiveness of the two systems.

As per the current prices, quoted by the manufacturers, the capital cost of the equipment is about equal for guns and missiles. Therefore unit to unit costs being equal, and the number of missile firing units required to defend a critical area being lesser than gun firing units, capital cost of defending a critical area with guided missiles would be much less.

Operating costs include multifarious items, the most important ones being manning costs, logistic support costs and target engagement costs. Manning and logistics costs for a modern gun system or a missile system would be about equal. The target engagement costs for missile firing units would however be much higher than those with the guns. This is so because a missile is a very expensive piece of munition as compared to even a large number of shells fired from the guns. However, while analysing engagement

costs it is not only the cost of missile or shells that should be considered, but also the kill probabilities of the systems, the real and operarional cost of the critical area being defended, the degree of acceptable destruction or damage in the critical area and the effect of likely destruction or damage on tactical and strategic plans. A cost comparison of the two systems embracing all the above stated parameters would clearly bring out that in the ultimate analysis a low level surface to air guided weapon system would prove cheaper than a modern air defence gun system.

CONCLUSION

Modern warfare envisages overwhelming employment of armoured and mechanised formations. These formations are vulnerable to attacks by enemy aircraft especially when on the move. There is, thus a necessity to provide air defence resources to these formations which can provide effective air defence on the move. A variety of modern radar controlled mobile multi-barrell guns and mobile low level surface to air guided weapon systems have been developed for this purpose. Even a brief analysis of the essential requirements of modern air defence weapon systems clearly brings out that guided weapon systems can perform this function more effectively than even the most modern gun system. It is, therefore imperative that our future plans for either development or acquisition of weapon systems for air defence of mobile formations should be based on mobile low level surface to air guided weapon systems and not on guns.

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SYSTEM OF PROMOTION TO HIGHER RANKS IN THE ARMY

BRIGADIER O S BHANDARI

AN officer remains generally contented in the sheltered atmosphere of his own Arm/Service till he attains rank of Lieutenant Colonel. On achieving this rank he becomes aware of vast horizon of possibilities of promotions that unfolds for those in the general cadre and the limitations inherent in his own Arm/Service. He then starts finding fault with the system of promotions in the Army beyond the rank of Lieutenant Colonel. Every officer whether he belongs to an Arm/Service aspires to higher command appointment. His ambition to rise to the highest rank in the Army is entirely understandable, but is it possible or practical to bring all officers of the rank of Lieutenant Colonels at par and consider them for higher command in the general cadre ? The immediate answer is perhaps "no". But these officers rightly say that the fact that they were allotted to a particular Arm/Service from the academy is not their fault. They cannot therefore be "nipped in the bud". Many of our officers nourish deep resentment towards the service because of the present promotion system.

The present system as far as it is known to us is that only the officers belonging to the Arms viz, Armour, Artillery, Engineers, Signals and Infantry are considered for promotion in the general cadre. Even in these Arms, only the Armoured Corps and the Infantry officers automatically come into the general cadre whereas in the case of other three Arms, the system is more selective. Armoured Corps or Infantry officers who are selected for promotion to the rank of brigadiers are given commands of Infantry and Mountain formations, but the Armoured formations are still the monopoly of Armoured Corps officers.

Command of field formations must come to officers who have detailed knowledge of Armoured Corps or Infantry. It, therefore, follows that only officers of these two Arms should get command of such formations. The ability to handle field formations is dependent on the detailed and practical knowledge and experience in these two Arms. The other Arms which either have advisory or supporting role and the Services work in that capacity only. Officers belonging to these Arms do not come in contact with Armourd Corps or Infantry to the extent of gaining experience in handling units of these Arms. It might be said that by working close to Infantry and Armour throughout their service officers of the other three Arms have acquired knowledge of these two basic Arms. As far as the administration

and logisitics are concerned they have gained adequate knowledge in this respect by commanding their own units. They claim that they have got the required managerial and administrative capability to handle a large body of troops by virtue of having done so in their own Arms. And having had very close knowledge of Armoured Corps and Infantry they can handle Armoured Corps and Infantry formations as well as anyone else can. They quote examples from the past history to support their contention. There is logic in what these officers say. But they fail to see the point that some superficial and theoretical knowledge of Infantry does not bestow upon them the ability and experience to handle field formations. There is difference between theory and practice.

Almost the same argument run as far as officers of the Services are concerned. However, it is not possible for them to have the same knowledge of Armour and Infantry because, in their day to day working, they do not come in close contact with these Arms. They have, therefore, little claim to command field formations.

Armoured Corps officer is in the happiest position. He automatically qualifies for command of Infantry/Mountain formations without ever having served outside his Arm which does appear rather strange. Recently, when some selected officers of this Arm were asked if they would like to be transferred to Infantry, almost everyone refused. It was said that they are so emotionally attached to their own Arm that they would rather wait a few years to attain rank of Lieutenant Colonel than be transferred to Infantry. Beyond Lieutenant Colonel, however, their emotions do not appear to affect them and no Armour officer has ever been known to refuse command of Infantry/Mountain formation or wait for an Armoured formation to fall vacant just as in the case of his promotion from Major to Lieutenant Colonel. These officers certainly enjoy a privileged position in our promotion system.

While the Armoured Corps officers are automatically taken in the general cadre once they have been selected for the promotion to the rank of brigadiers, Artillery officers are not. Some of the Armoured Corps officers who have been promoted to the rank of brigadiers and given Infantry/Mountain formations to command have had hardly any contact with Infantry throughout their service. On the other hand there is hardly an Artillery officer who has not worked with the Infantry at platoon/company Commander's level. An Artillery officer has also had the experience of training with Infantry in all operations of war and of going out with patrols, screens, covering troops and so on. He, therefore, understands not only the working but also the "nuts and bolts"of Infantry tactics. Most of the Artillery

officers who have been decorated have won them while working with the Infantry. While serving with the Infantry they have had to put up hardships to the same extent as an Infantryman. There is no reason why Armoured Corps officers have been given preference over them in the general cadre as they feel that they are better trained for command of Infantry formations than Armoured Corps officers. When it is pointed out to them that a short attachment with the Infantry on observation duties or Battery Commander does not give them the practical knowledge which is necessary to handle an Infantry formation, the answer is that knowledge so far gained is adequate for command of Infantry formations. Infantry being the basic Arm, its functioning is part of all their training. Some cynics even go to the extent of pointing out that one does not have to be bitten by a snake to know the effect of poison.

Corps of Signals and Engineers officers have almost similar claims though their claims are not so justified as those of the Artillery officers. Their association with Infantry is not of as intimate a nature as that of Artillery officers.

Whatever be the merits or demerits of various points of view, it is a fact that in some cases officers commissioned in Arms and Services other than Infantry and Armoured Corps are of higher calibre. In certain cases these officers did not opt for the Arms/Services to which they have been allotted on first commission. Had they been given an opportunity, even after having been allotted to other Arms/Services, they would have perhaps proved better commanders than some of us. We know a large number of officers who have not been taken into the general cadre but who would have made excellent commanders as compared to those who have been promoted by virtue of their being in the Armoured Corps or Infantry. In our present system equal opportunity is not available to all officers. If an officer volunteers for one of the Services knowing fully well the limitations of promotion and that he will not be taken into general cadre his case needs no consideration. But the officer who genuinely did not want to go into the Services but was drafted into one in order to ensure equitable distribution of officers of various calibres within the Army has been denied equal opportunity which is unfair and needs to be remedied.

How can this situation be remedied? It is clearly not possible to give command of Infantry formations to those officers who are not trained to handle them. This will include all Services officers. As far as Arms are concerned the present system of considering only Armoured Corps officers other than Infantry in the general cadre is perhaps a little discriminatory. It

is also debatable whether Armoured Corps officers have any claim to command an Infantry formation without having adequate training to do so. Indeed, an Artillery officer has greater ability and claim to it. Having accepted Artillery, Engineers and Signals as Arms they should be considered at par with the other Arms or else they should not be classified as Arms. This is a legacy of the past and can be reviewed now. In order to remedy the system, it is necessary that it must give equal opportunity to rise to the highest rank in the Army to all officers whether they belong to an Arm or Service. Unless this is done, the system will remain discriminatory. The following is suggested :—

(a) The present system of alloting officers to various Arms/Services based on their own choice and in interest of the Army should continue. Those officers who have opted for the Services at the time of commission should not be considered for command of field formations and should remain in their own Service throughout their career.

(b) All other officers including those of the Armoured Corps should be made to exercise an option that they are prepared to be transferred out of their Arm/Service. This they should do in the nineth year of their Service.

(c) A panel of all such officers should be prepared and after screening by the military Secretary's Branch at Army Headquarters, a final list should be prepared. While selecting such officers their performance in the last eight years will be the main consideration. Only those officers who fulfill certain qualitative requirements (to be laid down by Military Secretary's Branch) should be selective. Those who do not volunteer or are not accepted should get promotions only in their own Arm/Service including the Armoured Corps officers. The number of officers so selected is not likely to be more than 100 a year. It is possible for the Military Secretary's Branch to handle these officers for transfer from Services to Infantry and within the Arms to Infantry, if considered necessary.

The above system, if adopted, will remedy the present lacuna in our promotion system. It will bring all Arms on an equal footing. Officers of high calibre from Services can also be drafted into the general cadre. This will make the system broad-based and will be in the interest of the service as well as the officers. Eight years service for exercising option will give adequate time for an officer to make up his mind about his own future and also the Military Secretary to take a decision based on his performance. It will also result in efficiency in certain Arms as Artillery. Today most Artillery officers aspire not only to do Long Gunnery Staff Course but also Defence Services Staff College Course. Majority of these "double barrel"

officers hardly ever make use of their Long Gunnery Course qualifications. Consequently, Artillery suffers. Once an Artillery officer knows that he is not going to stay in the Artillery his priority will be different. This will result in economy of effort.

The system above will satisfy all points of view. Every officer will have adequate opportunity to rise to the highest rank. There will be a few disadvantages also but those who want to jump into the general fray will have to accept them ! The system will become broad-based and all discriminatory aspects of the existing system would have been remedied.

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MANAGEMENT OF DEFENCE PROCUREMENT

LIEUTENANT COLONEL H LAL B.SC. (ENGG) M.I.E. AMBIM (LONDON)

INTRODUCTION

The defence potential of a country depends essentially upon its industrial base. The requirements of modern defence forces cannot entirely be met by the defence factories alone. Firstly the range of products required is so vast that it is not feasible to have them manufactured in defence production units like Ordnance Factories. Secondly the production capacity of defence factories cannot be rapidly expanded during war. Therefore except for complex equipments, the production of which may not be feasible in the civil sector, the bulk of defence requirements should be met by civil industry. During an emergency, the production of defence stores in civilian factories can be quickly stepped by switching from civilian stores to defence equipment, as has been the experiences in Europe and America during World War II. The procurement of stores in developing countries like India poses certain special problems which are not faced in the developed countries of the West. Procurement problems in the context of Indian Defence Forces are analysed in this paper with a view to evolving an effective system of procurement from the civil sector.

QUALITY ASSURANCE OF DEFENCE STORES

THE quality of a product is a desirable attribute for any field of application. However when a store is intended for defence use, its quality assumes added importance, because failure or unsatisfactory performance can have serious consequence in terms of human lives and national security. It is for this reasons that defence forces have to build up a suitable organisation for quality assurance of stores procured by them. There has been tremendous industrial progress in India during the post-independence period, both in the public and private sectors. A large variety of products including some of the most sophisticated equipment are now being manufactured in the country. However demand for goods has increased at a much faster rate than production. This has created the conditions of a "seller's market where almost any thing sells. Since there is virtually no competition most producers tend to ignore quality and very little effort is made to maintain and improve the standar of their products. Under these conditions it is all the more necessary that adequate measures are adopted to assure the quality of defence stores procured from trade.

PROCUREMENT PROBLEMS

Defence stores procured from trade can be broadly classified under two categories, namely common civil use items, and stores specially manufactured for defence. Under the first category are items like clothing, medical stores and general stores, which are relatively easy to procure, since these are readily available in the market. The main difficulty arises in procurement of stores which are specially manufactured according to defence specifications. Some of the typical problems faced in this regard are given below:—

(a) Sources of supply for a particular store may not be available.

(b) The stores may be vaguely defind and their complete manufacturing drawings and specificatons are not available.

(c) A firm having accepted the supply order, is not able to produce the store due to non- availability of production capacity or knowhow.

(d) A manufacturer is unable to produce the store due to non-availability of a particular raw material.

(e) A producer is not able to maintain the requisite quality of the store and wants relaxation in standards.

(f) There is a dispute about acceptance of bulk supply between the producer and the inspector.

Some of these problems can be avoided and other resolved when they occur, if we have well co-ordinated procurement procedures and an efficient quality assurance organisation. The functioning of such a system and the role of the quality assurance organisation in defence procurement is discussed below :—

PROCUREMENT CYCLE

The procurement cycle begins when the users project their requirements to the stocking agency, and ends when the procured stores are received in the service depot. Jobs involved in various stages of procurement are :—

(a) Assessment of requirements.
(b) Defining the requirements in specific terms.
(c) Arranging the supply of manufacturing drawings and particulars.
(d) Location and development of sources of supply.
(e) Negotiation of purchase terms and placement of supply orders.
(f) Progressing of supply orders and inspection of the bulk supply.

Of the above jobs, (a) is carried out by the service Headquarters/stocking agencies and (e) i.e. purchase terms are negotiated by Department of Defence Supply except for minor orders which are directly negotiated by the stocking

agencies. All the other jobs are of a technical nature which can out only by a quality assurance organisation manned by qualified staff. It is generally thought that the quality organisation is required only for the inspection of stores before they are accepted. In fact the inspection forms only a small part of the overall role of a quality organisation. Its main function is to assist development and production of stores as is explained in the following paragraphs.

MANUFACTURING DRAWINGS AND SPECIFICATIONS

When a producer is asked to supply defence items, the first things which he requires are the manufacturing drawings and the specifications which give the exact details of stores and their intended functions. Unless the producer knows exactly what is required, he will obviously not be able to manufacture stores of requisite quality. For this purpose, the Defence quality Organisation has to maintain a number of technical libraries, where the manufacturing particulars and specifications are maintained. An establishment having such a library is known as Authority Holding Sealed Particulars (AHSP). Different ASHSP are organised for various disciplines such as Vehicles, armaments, electronics etc.

DEVELOPMENT OF SOURCES OF SUPPLY

The stores which are required only for the defence forces are not readily available in the market; as such their sources of supply have to be developed in the trade. This involves location of potential suppliers and verification of their capacity to confirm that they have adequate machinery and technical man-power to produce the stores of requisite quality. Such firms are then provided technical guidance to produce a prototype or development model of the required equipment. Detailed evaluation of the prototype equipment is carried out and the shortcomings are intimated to the firm along with advice as to how they can be rectified. This process is continued till the firm is in a position to execute the bulk supply order.

PROGRESSING OF SUPPLY ORDER AND INSPECTION OF STORES

Although capacity of the firm is verified before the bulk order is placed, it does not mean that there will not be any problems during actual supply. Some of the common problems are, nonavailability of specified raw materials, production problems and queries on manufacturing drawings. These problems have to be solved by suggesting alternative materials and processes and providing necessary clarifications. Sometimes a firm takes the stand that a particular quality standard is the best that can be achieved. In such circumstances the Users are faced with an awkward choice of having to accept a substandard store or no store at all. To avoid such a situation, the

engineers of the Quality Organisation should be able to suggest practical ways of improving the quality and act as consultants to the producers. This can be achieved only, if the quality organisation has competent engineers with intimate knowledge of production processes. Once the bulk supply of the store is ready, its quality has to be verified to ensure that the stores are of the required standard. This involves inspection of store according to laid down drill based on store specifications.

PROVISION OF INCENTIVES TO THE INDUSTRY

Main difficulty in procurement of defence stores arises from the fact, that the quantities involved are generall small. Due to this reason the trade firms hesitate to invest in development effort, as it is felt that the returns will not be comensurate with the effort required. Therefore there is a need to provide incentives to the industrial units who take up manufacture of defence stores, In the recent years it is also seen that there is a great potential for export of defence equipment to the developiug countries. Therefore development of defence industry in the country should be encouraged to meet our own needs, as well as those of export. The incentives could be in the form of of tax concessions, licensing additional capacity, sanction of import licences for raw materials and other related facilities. In addition to this, outstanding contributions in the field of defence production should be recognised by giving honours and awards to the concerned companies and individuals. This will help to glamourise defence industry and provide a strong motivating force for the civil industries to take up defence work.

STREAMLINING QUALITY ASSURANCE ORGANISATION

We have seen that the main role in defence procurement is played by the Quality Assurance Organisation. At present a number of different agencies are involved in quality assurance of stores procured by the three Services. There is considerable duplication of procurement effort as sometimes, similar items required by two Services may be procured by different agencies. If the requirements of similar items of the three services are bulked, they can be procured at cheaper rates as more firms will become interested due to larger quantities involved. Admittedly each Defence Service has certain range of special equipment of its own, but broad commonality exists in other stores, which may have only minor variations and can be produced by the same technology. The very fact that Defence R & D has been integrated, shows that the broad commonality of the requirements of the three Services has been appreciated. Although separate stocking depots are required for the Army, Navy and Air Force for better logistic control, the quality assurance agencies which provide technical service to the procuring agencies can

certainly be integrated. It is therefore logical that a unified quality assurance organisation should be established to meet the entire requirements of Defence. Technical requirements of special equipment of each service can still be met by having different ASHP for such equipment forming part of the integrated Quality Assurance Organisation. This will bring in a common approach to defence procurement and ensure optimum utilisation of the limited technical resources.

CONCLUSION

The Armed Forces need an enormous amount of stores and equipment to remain in a battle-worthy state. Self-sufficiency in this vital field requires a sound industrial base and an efficient procurement organisation. This can be achieved by providing tangible incentives and technical guidance to the civil industry to enable it to take up production of defence stores in a big way. To provide technical support for the procurement of defence stores of increasing variety and sophistication, we need a unified quality organisation manned by qualified staff and equipped with up-to-date testing facilities. The essential structure for such an organisation already exists in the form of inspection agencies of the three services. It is only to be strengthened and restructured to form a well-knit set up. Such an integrated organisation working in close co-operation with the three services and the Department of Defence Supplies. will be able to establish reliable sources of supply for defence equipment of required quality and quantity.

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FRANCOIS GRAND, A SOLDIER-ADMINISTRATOR

P. C. Roy Chaudhury

THE Eighteenth Century had brought many soldier-adventurers to India and Francois Grand was one of the most colourful of them and had left his footprint on the history of those days.

Recruited as a cadet under the East India Company, Grand was a man of ambition who did not suffer from the scruples of conscience. A native of Laussane he had some sort of schooling in England and had got into the military to make a career. When he came to India he found the country a happy hunting ground. Although he did not go beyond the rank of Captain he had shown guts and initiative and made a mark. He married in India a very young girl with a mixed Danish origin as a Captain. The bride, Madam oiselle Worli was one of the rare beauties who grow more beautiful with age. She was as unscrupulous as her adventurous husband and soon attracted quite a number of admirers. She knew how to hook a male and would choose her victim with care. Sir Philip Francis got into serious trouble over her. Sir Philip lost his coveted job in the Council of Warren Hastings and at the top of that was sued for damages by Francois Grand and this was probably in connivance with his wife. Chief Justice Sir Elijah Impey and Justices Chambers and Hyde gave an award of Fifty Thousand rupees to Grand.

Grand's wife had become too big for the commoner Grand and after a divorce sailed abroad. She went to France and managed to attract the attention of the famous Prince Talleyrand. For some time she remained the mistress of Talleyrand and when the scandal was going to rock the country Talleyrand married her and she became Princcess de Benevento. But Talleyrand took his revenge as he knew that the woman had engineered the scandal to snowball. He absolutely deserted her. It is said that years after enjoying the status when she died Talleyrand had muttered that she should have died earlier.

Grand was not doing badly either. When the Tirhut District in Bihar was first created Grand was chosen as the first collector. It was quite common at that time to choose a promising military officer to such civil jobs. Tirhut comprised the present divisions of Muzaffarpur and Darbhanga Divisions in Bihar. The land was wonderfully fertile and grew first class indigo, sugarcane and tobacco. Quite a few Europeans had started Indigo kothis and were

harvesting rich dividends. The Collector Grand combined his official duty of collecting rentals and controlling Law and Order problems with growing indigo as a private concern. He amassed a fortune and organised three flourishing Indigo kothis and fully utilised his official position to further his own ends. But it must be said to Grand's credit that he modernised the techniques of both cultivation and processing indigo from the fibres and eliminated a good percentage of loss. He was a pioneer in consolidating chunks of land so that the cultivation was not done on small bits of land. But to consolidate large areas of land he had to divest many small cultivators of their holdings. He was appointed the Collector in 1771 with Muzaffarpur town as his headquarters. In his own words he had made a fortune of £15,000 from his indigo concerns and his houses, land, furniture, tents, equipages, horses, boats etc. Stood upon a valuation of £10,000 more. Grand had also been able to augment the revenue of the Government and had brought the administration to some stability for which Warren Hastings had probably shut his eyes to the private activities of the Collector Grand.

But his succeser Lord Cornwallis had other ideas and came down severely on the Government employees making money by private trade or cultivation. Cornwallis straightaway dismissed Grand from his coveted job in 1787 and appointed Bathurst as the Collector. Grand left India a very disillusioned man but not without hopes for the future.

Strange enough he thought of his divorced wife who was then at the height of her glory as the Princess. The divorced wife the Princess was by then deserted by Talleyrand and was kind to Grand. Through her influence Grand got the job of an Inspector of Woods and Lands at Batavia. Grand died at the Cape of Good Hope in 1821.

Grand had gambled with life but he had enjoyed himself on his own admission. He fought with circumstances and knew to take a defeat but he would not sink. As the Collector of Tirhut he never neglected his official work and gave a good account of himself. Grand followed the order of the day when the Company's employees were mostly earning money privately and stretched their conscience to utilise their official position for private gains. He was the first person in India who saw the possibility of making Indigo cultivation and manufacture a grand success. It was he who was the father of modern Indigo Kothis in Bihar. Although Grand was turned out a host of Europeans came to Bihar later and when Gandhi had gone in 1917 to Bihar in connection with the oppressions of the Indigo Kothiwala sahib there were hundreds of them in Bihar.

BOOK REVIEWS

UNITED STATES INFANTRY EUROPE 1942—45
by HOWARD P DAVIES
(Published by Arms & Armour Press, London.) pp 32, Price 95 P.

THE publication is a fine specimen of real good reproduction of photographs and fine print on good quality paper. In mere 32 pages, besides numerous photographs, valuable information about the back ground of the United States Infantry and its exploits in Europe has been judiciously given. The photographs graphically depict different types of Uniforms, ranks, insignias, helmets, boots alongwith men in action, which leave an effective impact on readers mind.

The superiority of material, cut and tailoring of United States Armed Forces' uniforms is more than evident. Compared to British Armed Forces' dress, the American uniforms are far more attractive in appearance and their MI steel Helmet is far more protective. Their combat clothing too have positive edge being better suited for training and in combat.

During war and otherwise, American informality is quite obvious, yet in casualness of uniform, it did not match that of the 'Desert Rats' of Monty.

It must be said to the credit of Publisher that no other Key Uniform Guide of Howard P Davies is so descriptive in details as this one. The photographs reproducing uniforms, insignias and items like helmets and Boots in natural colours are captivating. A photograph showing a GI sharing his candy bar with a little French Girl in World War II is reminiscent of American informality and fellow feeling. The publication besides containing description of uniforms and equipment, is rich in history, participation and exploits of the U.S. Infantry in Europe.

The mention of long forgotten dates like

(a)	Germany declared war on USA on	11th Dec. 1941
(b)	First Infantrymen under the command of Brig. General W.H. Hays in Northern Island on	26th Jan. 1942
(c)	Established Headquarters in England and unfurled the Stars & Stripes on the ancient building of West Minister Abbey on	26th Nov. 1942
(d)	General Eisenhower arrived in England to take over as Supreme Commander of Operation 'OVERLORD' in	Jan. 1944.
(e)	Operation 'OVERLORD' launched with some 5000 vessels in early hours on	6th Jun. 1944
(f)	War in Europe was over by	8th May 1945

besides being of general interest, are quite handy and useful for a writer or reader of history. The account further gives in broad details, U.S. Infantry's participation in different battles in Europe.

This in short is an informative attractive booklet, which members of all forces of any country will do well to go through and get acquainted with the informal GI and the forces he belongs to ?

MS

BRITISH EIGHTH ARMY NORTH AFRICA 1940-43
by ROBIN ADAIR.
(Published by Arms and Armour Press London.) pp. 32, Price 95 P.

THE British Eighth Army came into being in September 1941, with General Sir Alan Connigham as its first commander, and within 2½ months time it advanced as far as El Agheila. On 21st January 1942, under Rommel's counter attack, it abondoned Benghazi and came back to Gazala.

The British Eighth Army popularly known as 'Desert Rats', is more the story of German General Rommel 'the Desert Fox' and of British General Montgomery, better known as 'Monty'. The see-saw battles of World War II in Northern tip of Africa, were the battles of wits between the two Generals. 'Monty' is said to have given Germans a tough time and is stated to have been more than a match for Rommel. But in fact it is not so. Rommel had been utterly starved of fuel and ammunition, by the Britishers with the help of 'ULTRA', which has come to light after 30 years of war. Rommel in fact was too imaginative and far superior in tactics and it is rather interesting to see that inspite of being starved of the two essential in any battle, he kept the 'Desert Rats' ever on tenterhooks and gave them real tough time. But for 'ULTRA' Rommel would have utterly routed the British Eighth Army.

Uniforms, head dress and insignias of the 'Desert Rats' depicted in natural colours are impressive. The other photographs in black and white of the Generals of the Army; the Infantry men advancing with fixed bayonets charging in battles, 'advancing at the double' chasing the retreating German Army and Tanks on the move leave an unforgettable impression on one's mind. Eighth Army's uniform was amazingly casual and individualistic, more a matter of convenience between the Commanding Officers and their men. The evolution of their Uniform was to a great extent in keeping with the climate of the desert as baggy trousers, a neck scarff, which was protection against fine choking dust and served as a sweat rag; the rubber soled boots, to obviate necessity of polish and to give better footing on shifting sands and sheep skin coat a substitute for Great Coat in winter.

Rommel's superiority in tactics and strategy are too well known to need

repetition and no wonder that films like 'Desert Fox' have run for weeks togcther. But for 'ULTRA' on Monty's side, Rommel would have had the last say!

The booklet brings out the historical background to the course of war in the desert, which swayed backward and forward time and again ultimately Axis giving way to Allied Forces. The photographs in natural colour are captivating, while over 50 black & action photographs are no less impressive. It provides interesting and informative reading material.

MS

BRITISH PARACHUTE FORCES-1940—45
by HOWARD P DAVIES
(Published by Arms & Armour Press LONDON.) pp 32, Price 95 P.

THE sophisticated equipment like light weight Motorcycle (precursor of Scooters with small wheels) and light weight collapsible for the use of Paratroopers witnessed in early 1943, gave one the impression as if the British Parachute Forces were of a long standing with still older history behind them. Surprisingly enough the British Parachute Forces then were of very recent origin, say of not more than 2-3 years.

It is only after seeing the success of German Paratroopers assault in Belgium and other places that the war time Prime Minister Winston Churchill in June 1940 initiated a Memo for raising Parachute troops. RAF was assigned responsibility to develop Para equipment, evolve methods of dropping and teach the troops air technique, while Army was made responsible for fighting on ground, weapon and tactical training of Parachutists.

Surprisingly enough, in a very short time essential equipment of all types was developed and produced and volunteers trained. By 1944 (in less than 4 years) a big force had been raised as to drop 10,000 parachutist in ARNHEM area and by March 1945 mustered 3000 aircrafts and gliders to drop 16,000 airborne troops across the RHINE-something fantastic indeed.

Paratroopers fought some of the bloodeiest battles with the Germans and thus have a heroic record to their credit. So no wonder that they earned the name of 'Red Devils' from Germans, though as a nickname, yet it was indirectly a compliment.

Besides uniforms and accoutrements in use by the Paratroopers, depicted by photographs, the booklet contains vivid narration of some of the gruesome battles fought and pungently traces the brief history of Parachutists which heavily leans on German pattern. To begin with the Britishers had nothing else to go by than a damaged parachute and a Fallschirm Jager Steel helmet of a killed German paratrooper, to copy. Any formation could be rightly

proud of such wonderful achievement in development of equipment, training of men and exploits of parachutists, just in a period of 2-4 years-hats off to British Parachute Forces!

An other interesting feature of this force is that they were all volunteers drawn almost from every Regiment and branch of British Army. As Parachutist they retained the identity of their original formations in dress, but superimosed it with cap badges, insignia and maroon beret of the Parachutists.

Some of the equipment and uniform items reproduced in natural colours accompanied by action photographs are of course graphic. The booklet besides being of interest for all Armed Forces personnel, is of special interest for Paratrooper the world over. It deserves to occupy a place of honour in the booksheleves of Paratroopers.

The author and the publisher deserve 'Kudos' on production of such an interesting and informative booklet so beautifully illustrated. The quality of print and paper would be an envy for any such publication.

MS

WINSTON CHURCHILL :
By ELIZABETH LONGFORD
(Published by Sidgwick & Jackson). pp 224, Price £ 5.95 UK only

THIS is a pictorial biography of Mr. Winston Churchill by the reputed writer formerly Lady Pakenham and now Countess of Longford C.B.E. She is one of the greatest living biographers in United Kingdom; and has to her credit other well known biographies, such as Wellington (the years of the Sword), Pillars of State and Victoria R.I.

To commemorate the Birth Centenary of Churchill (born 30th November 1874, died 24th January 1965) the Churchill Foundation commissioned her to do this biography. As such the author has had access to much material which would not have been easily available otherwise. The book contains 160 magnificent illustrations in colour and in black and white, several of which have never been published before. The biographer has presented Churchill's life story (spanning two centuries) in simple language, and has given it the epic quality it deserves. The portrait of his greatness has been drawn with love, wit and conviction.

Winston Churchill will always be remembered for his leadership of his country, the British Commonwealth and Empire, and the free world in the critical years of the Second World War. While he had not the power at his command to defeat the Nazi tyranny unaided, he had the vision, the courage, and the genius to make victory possible.

Winston Churchill was a great man, by any standards. His ninetyone years of life had its share of both failures and triumphs. Those of us who have lived through World War 11 1939-1945, especially in and around Britain at the time, recollect him well. His varied life and experience as a painter, mason, soldier, journalist, author and politician had not only trained him with ample measure of confidence to face and tackle any problem, however complicated and difficult.

The reviewer, a sailor, undergoing his initial training in United Kingdom during 2nd World War, recalls how Churchill with his eloquent oration and political will galvanised his country, as one man to face the days of defeat and gloom, cast by the sweeping victories of the German War machine in Europe from September 1939 to 1941.

In May 1940, when the British Expeditionary Force was evacuated from Dunkirk and the fall of France imminent, Churchill made his famous speech in Parliament to his country and the world, the words resounding in our ears even today thus: "I have nothing to offer but blood, toil, tears, and sweat..... You ask, what is our policy? I will say: It is to wage war, by sea, land and air, with all our might and with all the strength that God can give us! to wage war against a monstrous tyranny, never surpassed in the dark, lamentable catalogue of human crime".

A month later when France had capitulated to the German forces, and with the enemy in control of the entire French coast facing Britain, the reality of invasion of the British Isles became obvious. It was at this juncture that on 18th June 1940, Mr. Churchill announced in the House of Commons whilst Prime Minister of Defence that England stood alone against the enemy. In order to show his courage and that of the country in a new Dark Age, he stated in yet another more famous speech:- "We shall not flag or fail. We shall go on to the end, we shall fight in France, we shall fight in the seas and and oceans, we shall fight with growing confidence and growing strength in the air, we shall defend our Island whatever the cost may be, we shall fight on the beaches, we shall fight on the landing grounds, we shall fight in the fields and in the streets, we shall fight in the hills; we shall nevr surrender..... And even if, which I do not for a moment believe, this Island or a large part of it were subjugated and starving, then our Empire beyond the seas, armed and guarded by the British Fleet, would carry on the struggle, until, in God's good time, the New World, with all its power and might, steps forth to the rescue and the liberation of the Old".

The invasion of Britain was planned by Hitler during 1941, but in order to succeed he had to assure himself of air supremacy over England. And thus came the well known expression of "Battle of Britain" in the sky. Mr. Churchill in his jovial mannerism referred to it as a "sporting event" characterised it as: We have got into the final, and it is on the home ground". The Luftwaffe made 1,786 sorties over United Kigdom, but was unsuccessful

to gain control of the skies. It brought forth from Churchill another famous statement, "Never in the field of human conflict was so much owed by so many to so few".

Churchill always maintained that India was the brightest jewel in the British imperial crown. He believed that it was the British Empire alone which gave Britain her greatness. Britain without the Empire would like Samson without his hair or Antaeus without his feet on Mother Earth. This Churchillian imperialism led him to political wilderness a few times. Churchill had been to India as a young Army Officer in the 4th Hussars in 1896. On landing in Bombay, he dislocated his right shoulder. He played polo in India, despite his injured shoulder, but as it was not politics, he returned to England in 1897, and became a war correspondent for the Daily Telegraph. This led him to follow sincerely the proverb "The pen is mightier than the sword" in later life. In political life Churchil often clashed with the party in power over India. India's demand for freedom never had his approval. Gandhi appeared to Churchill no better than an astute politician who had enjoyed "commodious internment" in a British-Indian prison, only to win release and honour at the 1931 Round Table Conference in London. At their worst, Gandhi and his right-hand man. Jawaharlal Nehru, were seen by Churchill as "evil and molignant Brahmins". "It is no use trying to satisfy a tiger by feeding it on cats' meat" said Churchill. As Gandhi did not eat meat of any sort, this metaphor lacked his usual felicity.

Winston Churchill's Imperialism was essentially nationalistic. The Empire was an instrument that gave Britain a world position that she would not otherwise have had. Therefore, it brought forth from him the statement that "he was not Prime Minister of England to preside over the liquidation of the British Empire".

IInd world war came to an end in Europe and England in May 1945. Soon after elections were held in July 1945, when Churchill and his conservative Party had hoped that the British people would wish him to continue. As results of elections started coming in Churchill felt a sharp stab of almost physical pain. The discontent at the prospect of being beaten broke forth in his mind. When the full results were known Churchill found himself dismissed from the House of Commons. The verdict of the electors had been so overwhelmingly expressed in favour of Mr. Clement Attlee and his labour party. Churchill in his farewell message to the British people felt grieved that he could not continue to finish the work, which was entrusted to him in the perilous years and darker times. The independence of India was thus hastened. Labour Party leader Clement Attlee now holding reins of power was sympathetic to the cause.

Churchill had the weakness of interfering in actual battle operations in the field, despite the advice of his Chiefs of Staff. There are several such

instances in World War II also. But whenever the Chiefs of Staff showed firm resistance to Churchill riding roughshod over their expert advice, he treated them with respect and as personal friends. On page 133, there is a picture showing Churchill flanked on either side by Sir Stafford Cripps and C-in-C-British Home Fleet Admiral Sir John Tovey (not Tovet as spelt in the caption). Here I am reminded of the great moment of British sea power at the sinking of "Bismark" in May 1941 in the Atlantic Ocean.

The Royal Navy had already suffered the loss of "Hood"and" Prince of of Wales" badly damaged. The Admiralty summoned all forces. The ships viz. King George V, Ramilles, Rodney, Revenge, Repulse, Renown, Ark Royal, Victorious. Norfolk, Edinburgh, Dorsetshire, Sheffield, Galatea, Aurora, and 20 destroyers in the vicinity were called in to encircle and sink the enemy. In the excitement of battle some large and small naval units had gone in to close to the "Bismark", and thus endangered their ships. Churchill, the Admiralty and other superior politicians had desired to bring the captains of these units to trial by court-martial for "hazarding their ships". But Admiral Tovey, who was in command of the entire operation and present on the scene of battle, flatly informed the Admiralty that, if their Lordships order courts-martial, he himself would haul down his flag and act as friend of the accused. After that Admiral Tovey records laconically: "I heard no more about it". Such examples are rare to find in the Armed Forces of nations today. Churchill was a great supporter of the British Monarchy and had secret fondness for the institution in itself. Even when not in power, he was always partial to it. In 1936, King George V died and King Edward VIII ascended the throne. The young king had got involved passionately with Wallis Warfield Simpson, who unfortunately had been married twice already, and both her previous husbands were still alive. The government of Mr. Baldwin and the Church were opposed to this union, whereas Churchill, though in the opposition, endeavoured his best for a solution enabling the prince to retain the throne and allow a consort. During this nine day drama Churchill had proclaimed his unconditional allegiance to King Edward VIII. Even when the King had settled for abdication, Churchill was playing for time to gather and rally his supporters for the cause.

Churchill, it must be emphasized was a romantic person. He liked to gild the highlights and blacken the shadows. When he felt depressed he must describe it as a pitch black depression. He was a dedicated romantic monarchist, and believed faithfully in British tradition. Secretly he had always cherished to be awarded the Knight of the Garter, the highest political honour that could be bestowed upon a Briton by the Royalty. He accepted the Most Noble Order of the Knight of the Garter when his Queen offered it to him after the Order was reconstituted as her personal gift in 1954. The Motto of the Order is : "Honi Soit qui Maly Pense (Evil be to him who evil thinks). It was

founded in 1348 by Edvard III and limited to 26. Churchill delayed acceptance as long as possible, for by tradition the Prime Minister of Britain has to remain "mister" so long as he is in the House of Commons. Churchill once said he would have liked the honour but without the "Sir".

During his lifetime he had received numerous National and International honours and awards both in his official and private capacity. In 1946 he received the Order of Merit, which is limited to 24 living persons for distinction in Science, Literature, Art etc. etc., and in 1953 the International Nobel Prize for literature. He had several well known publications to his credit as well.

Churchill had always desired to be honoured by America, and this he achieved when President John F. Kennedy made him an Honorary citizen of United States on April 9,1963, on his 88th birthday, by a Prociamation at the White House ceremony preceded by the words "We meet to honour a man whosc honour requires no meeting - for he is the most honoured and honourable man to walk the stage of human history in the time which we live".

In conclusion, Churchill's motto in life is worth committing to one's memory:

In war ; Resolution	In defeat : Defiance
In victory : Magnanimity	In peace : Goodwill

KNB

HOME AND SCHOOL
by TYRRELL BURGERS
(Published by Penguin, Press, 1973) pp 246, Price £ 2.75

TYRRELL Burgers' Work Home and School is a book of immense value for parents. Though, this Penguin Press publication of 1973 carries current English context as its backdrop yet Indian readers will find many problems common to their own. Amidst the multitude of unique or general problems of a child, the author has tried to streamline the thinking of parents teachers and educationists along a "critical path". Especially the parents are taken on a journey along this "critical" path to have a glimpse of all the matters of crucial importance in a child's life.

As the name suggests main objective of the book is to initiate a spirit of participation among parents, teachers, law makers, government authorities and other voluntary organisations for a proper development of the child. "Each child is unique", his problems are "individual" problems which require a particular type of solution for satisfactory development.

Education is a system of development by which each child is helped "to grow physically, emotionally and mentally" to become oran independent adult and not a slave of circumstances". Progress ineducation has to be in tune

with the developmental stages and not to be the line of chronological order. The reference made regarding "critical" and "sensitive" periods of a child's life are appreciable and insightful. Parents, teachers and school authorities are all made conscious of equal responsibilities towards a child whose proper education not only requires coordinated efforts of all concerned but constant vigilence and sustained interest also. A span of 16 years from pre-primary to secondary stage is covered in 234 pages and 12 chapters. A brief introduction of physiological and pshychological predispositions of a child as a future individual precede the specific problems of pre-school stage. Parents are made acquainted with personal needs of preperations for a fruitful schooling, practical problems and psychological considerations in a choice of a school, latest psychologlcal aids and techniques.

The author is very particular about the primary school curriculum so that correct sequence of abstract concepts and concrete facts are understood. Tyrrell says "First the children should start with the facts of the world around them then they should begin to understand relationships, and only when these are well understood should they practice the use of concepts involved," Gradually transition from primary to secondary education along with alround academic and personal training leads to an all round development. The developmental needs of the growing "individual" can be fulfilled through carefully planned indoor activities, intelligent layout of the household, the time schedule also. The discussion of problem in chapter 11 is of special use and guidance under present circumstances.

The language of the book is simple and style is straight forward, assuming a face to face conference manners. Tyrrell has very wisely presented a dynamic perspective of education as against the static scketching of academic knowledge to highlight the all round growth and enrichment of the human personality.

SG

LORD PALMERSTON
by JASPER RIDLEY.
(Published by Constable and Co. Ltd. London. 1970) pp 688 Price £ 3.1

HARDLY if ever has a national leader lived through a period of such tremendous changes — political, economic and social — as Palmerston. His career spanned the era from George IV to Victoria, covering nearly 60 years of the nineteenth century. This biography which is the result of recent research by the author provides a most coherent picture of the life and times of Palmerston.

Entering Parliament in 1807, Palmerston was Secretary for War from 1809 to 1828 in various Tory ministries. He left the party on account of the attitude of Wellington and joined the Whigs. From 1830 to 1856 he was

Foreign Secretary to successive governments, till he became Prime Minister in 1855. In 1858 after the ORSINI incident the public felt he had truckled to the French. He resigned. His next ministry was formed in 1859, and till his death in 1865 he remained the Prime Minister. Palmerston was no reformer but a dominating upholder of the rule of law. He had the redeeming quality of giving way to public opinion without reservations.

It was however, the handling of British foreign policy that has given Palmerston a pre-eminent place in History. This is dealt with very thoroughly. Dismissed from the Foreign office in 1852 by the Queen, over a despatch sent to the British Ambassador in Paris, Palmerston was soon back in the Government as the Home Secretary. It was the time Europe was drifting slowly in to a war between the great powers and the Prime Minister Aberdeen was being denounced for appeasement - almost like Chamberlain before the Second World War. Had Palmerston been the Foreign secrtary during the period, the Crimean war might well have been averted. "His mixture of firmness and moderation wich he displayed when dealing with great powers would have been invaluable".

Palmerston followed a vigorous and aggressive foreign policy, although the Tories accused him of giving into France and the Radicals of giving into Russia by his secret diplomacy. Ridley mentions how Palmerston seldom intervened at the beginning of an international crisis, but allowed it to develop and events to take their own course till an oppurtunity occurred for Britain to intervene decisively and obtain maximum advantage. The Belgian, spanish and Turkish problems gave him these chances for the slow "Wait and see" policy. For this the opposition called him "Bully to the weak and coward to the strong".

In upholding the honour of Great Britian and extending its influence a principle of the foreign policy of Palmerston often highlighted by Historians is his support for all continental movements for the establishment of independent nationalities and constitutional governments. From this biography it is evident that this was not so; because the aim of obtaining maximum advantage for Britain made Palmerston indifferent to the forms of Government in other countries. He had no qualms about the principles involved. A "volte face" in British foregin policy if the situation demanded came naturally to him. He could thus break the alliance with France and align with the autocratic Northern powers. His suceess was also due to the gift he had of calculating the correct relative strength of his own country and his adversaries.

In less than six hundred pages divided into forty chapters very wide ground has been covered. It is also a relief to read a biogrphy that deals

objectively with all aspects of the life of Palmerston, the changes that took place in the man, from the time he was a young 'Lord Cupid' to his final days as Prime Minister, when he was affectionately called 'good' old Pam'. It gives not only his virtues but also his weaknesses. As the Foreign secretary, Palmerston was repeatedly reprimanded by Queen Victoria for sending despatches to ambassadors abroad without her prior approval. Moreover the Queen knew of Lord Palmerston's "Worthless private character". There had been an incident at Windsor castle. Also mentioned are the many British qualities that Palmerston combined like instinct for debt collecting and regard for the rule of law. His image in England was that of a John Ball with the most polished manners, frank courteous and good tempered.

For Indian readers it is natural to turn to the Chapter on the 'Indian Mutiny'. The sequence of events is described. It took more than a month for the news to reach Palmerston and his cabinet, when Sir Colin Campball and some re-inforcements were sent out to India. Coming soon after the disaster of the Crimean war, this was a staggering blow to public confidence in Britain. Feelings were high and public opinion inflamed. Mention is made of the Press and the 'Times' crusading for "a religious war of extermination against the Hindoo and Moslem in India". The actions of the Governer General Lord Canning were considered lenient, but Palmerston never lost his poise or his courage. The situation came under control and he could congratulate Canning. The incident of the Indian troops at Meerut refusing to accept the cartridges issued, has been mentioned and also the refusal is given as offending their religious principles. This is an inadequate explanation of the Indian revolt of 1857.

There is an excellent chapter-Lord Cupid. It deals with the interest Palmerston took in women and of the life at the then most exclusive club in London Almacks. The club was run by seven lady Patronesses, but had no difficulty in entering it as he was probably the lover of three of them—Lady Cowper later to marry Palmerston, Madame Delien and the gay and flirtatious Countess of Jersey. It gives some idea of the moral tone of society in the days of the Regency.

Palmerston took a life long interest in the matters connected with the Army. Flogging was an accepted punisment in those days. He opposed the motion to abolish it, but he was one of the few leaders who thought of the common soldier. It was at his suggestion that all those soldiers who served at Waterloo, were allowed to count it as two years service for increase in pay and pension.

This is a scholarly analysis of one of the great Prime Ministers of Great Britain, and a biography which should be available in every library.

MMM

SECRETARY'S NOTES

ADDRESSES

Members are again requested to notify changes of addresses immediately to this office. When journals and correspondence are returned undelivered by the post office we have to write to the Service headquarters concerned and it takes some time before we get the new addresses.

SUBSCRIPTION

I would like to thank all those members who paid their subscription so promptly at the beginning of the year. To those of you who have not yet paid may I remind you that your subscription was due on the 1st January. Would you please, therefore, put a cheque in the post to me TODAY. Outstation cheques should invariably include Bank commission of Rs. 3/50.

ACTIVITIES - SEMINAR

A Seminar on the "Necessity of keeping our Armed Forces young, so as to maintain a high state of physical efficiency, is causing personal problems of increasing magnitude. Careers are short and absorption in civil life difficult in middle age" was held in the USI Library Hall on 3 December 75. General TN RAINA, MVC, the Chief of the Army Staff and Vice Patron of the USI inaugurated the Seminar. Brigadier NB GRANT, AVSM (Retd) acted as Coordinator and several senior Armed Forces officers, serving and retired, participated as panel members. The Seminar discussed if there was any way out of the dilemma and the possible ameliorative measures to be taken. Proceedings of the Seminar have been printed and can be obtained on payment from the Publications Officer of the USI.

USI NATIONAL SECURITY PAPERS

The Council of the Institution has decided to publish comprehensive and analytical papers on subjects of current value and importance connected with national security aspects which would give to our members, Armed Forces, the Civil Services and all those who are interested in defence matters, material for thought. It has so far published the following papers :—

(a) Paper Number One — China's Strategic Posture in the 1980's by Maj Gen (now Lt Gen) AM VOHRA, PVSM

(b) Paper Number Two — A New Battle Tank for India by Brigadier RD LAW (Retd)

(c) Paper Number Three—Combat Vehicle for the Mechanised Infantry by Brigadier R D Law (Retd) (Under Print)

The Executive Cemmittee of the USI has been empowered to approve subjects for such research papers. These papers should deal with some aspects of national security and should throw some fresh light on the subject. The papers may vary in length between 10,000 to 15,000 words.

Members of the Institution, other officers both serving and retired, and scholars interested should send their names and outline synopsis to the Secretary of the USI by 30 June 76 for selection and final approval by the Executive Committee.

The Institution will give an honorarium of Rs 500/- for each paper approved for publication. Copyright of such published papers will vest with the Council of the USI.

NEW MEMBERS

From October 1 to December 31, 1975 the following members joined the Institution :-

ADARSHPAL SINGH, Captain
AGNIHOTRI, Major T.R.
BANERJEE, Captain S.N. (Life)
BINDRA, Captain H.S.
CHAUDHRY, Major S.C.
CHINNAPPAN, Major V.
DESHPANDE, Captain A.G. (Life)
D'SOUZA, Captain REX H.
DHALIWAL, 2/Lieut D.S. (Life)
DIPAK SANYAL, Shri
DUTTA, Captain D.K.
GHANSHYAM SINGH, Captain
GUMBEER, Captain V.K.
HARDEV SINGH, Captain (Life)
HARJIT SINGH SARIN, Captain
IQBAL SINGH, Captain
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KANWAR, Major B.S.
KEHAL, 2/Lieut V.K.
KHURANA, Lt Col S.S.
LAUNGANI, Major T.V.
LIMBU, Captain D.
MALAIAPPAN, Captain K.
MALHOTRA, Captain S.P.
MAN SINGH, Major N.B. (Life)
MEHTA, Captain A.K.
MITRA, Sqn Ldr S.
MUKHTIAR SINGH, 2/Lieut
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PARTAP CHAND, Captain
RAJENDREN, Captain G. R.
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RANA, Captain B.S.
RATHI, 2/Lieut D. (Life)
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SHIV DEV SINGH, Captain
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SUBRAMANIAN, Major G.K.
SURINDER SINGH, Captain (Life)
TALWAR, Sqn Ldr S.K.
THOMAS, Flt Lt P.K.
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WANN, Captain J.S.

Eleven Officers Mess and Institutions were enrolled as Subscribers during this period.

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Breyer, Siegfried	The Battleships and Battle Curisers 1905-1970. 1973.
Horton, Frank B and others	Comperative Defence Policy, 1974.
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Weeks, John	Men Against Tanks : A History of Anti-Tank Warfare. 1975.
Windrow, Martin and Francis K. Mason	A Concise Dictionary of Military Biography. 1975.
	AIR FORCE
Kullar, Amarjeet	Effective Air Power for Developing Countries. 1975.
	NAVY
Hezlet, Arthur	The Electron and Sea Power. 1975.
Gorshkov, Sergei G.	Red Star Rising at Sea, 1974.
Polmar, Norman	Soviet Naval Power : Challenge for the 1970's. 1974.

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Cook, Hugh	The Sikh Wars : The British Army in the Punjab 1845-1849. 1975.
Parotkin, Ivan	The Battle of Kursh. 1974.
Sensarma, P.	Kurukshetra War : A Military Study. 1975.

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Copeland, Miles	The Real Spy World, 1974.
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Popov, Dusko	Spy/Counterspy. 1974.

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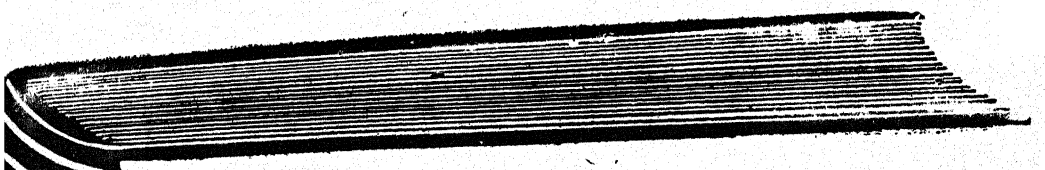
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Morris, Richard B	The American Revolution Reconsidered. 1967.
Morris, Richard B	The Emerging Nations and the American Revolution. 1974.
Nye, Russel Blaine	Society and Culture in America 1830-1869. 1974.
Rossiter, Clinton	The American Question 1790-1860: An Emerging Nation in Search of Identity, Unity and Modernity. 1971.
Pierson, George W	The Moving American. 1972.
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	Sweet Land, Sweet Liberty: The Story of America as found in the Experiences of Her People, 1974.
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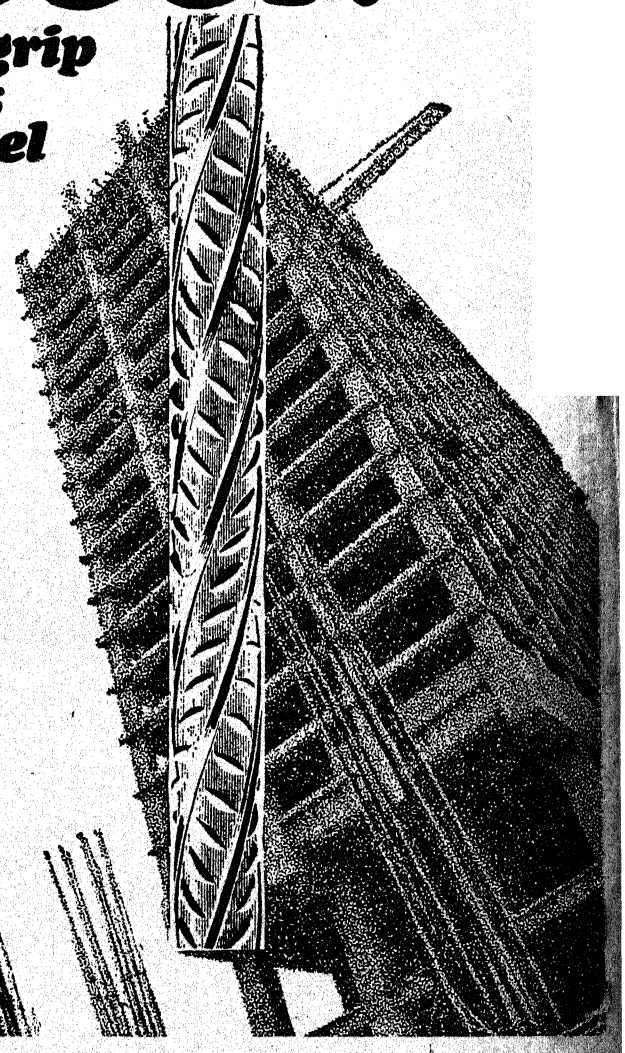
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